Summer 2022

UISCE ÉIREANN : IRISH WATER

Draft Regional Water Resources Plan–South West

Strategic Environmental Assessment

Environmental Report

Non-Technical Summary

Tionscadal Éireann
Project Ireland
2040

Data disclaimer: This document uses best available data at time of writing. Some sources may have been updated in the interim period. As data relating to population forecasts and trends are based on information gathered before the Covid 19 Pandemic, monitoring and feedback will be used to capture any updates. The National Water Resources Plan will also align to relevant updates in applicable policy documentation.

Baseline data included in the draft RWRP-SW has been incorporated from numerous sources including but not limited to; National Planning Framework, Central Statistics Office, Regional Spatial and Economic Strategies, Local Authority data sets, Regional Assembly data sets and Irish Water data sets. Data sources will be detailed in the relevant sections of the draft RWRP-SW. 2019 was selected as the base year to align with the planning period (2019-2025) of the NWRP.

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1 Introduction and Background

This is the Non-Technical Summary for the Strategic Environmental Assessment (SEA) of Irish Water's National Water Resources Plan Draft Regional Water Resources Plan – South West. This summary is provided with the SEA Environmental Report, as part of meeting the requirements for SEA, as set out in European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004) as amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I. No. 200 of 2011.

1.1 Introduction

Irish Water is Ireland's national water utility, responsible for providing public water and wastewater services throughout the country. Irish Water's mission is to ensure that all their customers receive a safe and secure supply of drinking water and have their wastewater collected, appropriately treated and returned to the environment. Irish Water will protect the environment in all their activities and support Ireland's social and economic growth in a sustainable manner through appropriate investment in water services.

Effective water services, including the delivery of a sustainable and reliable clean water supply and safe disposal of wastewater, are essential for a modern country. Being able to understand and estimate how much water is required, where it is required, and the variability of requirements over the course of the year or over time, is essential to plan appropriately for the future of the public water supply.

A Water Resources Plan is a strategic plan used to identify deficiencies and need across a water supply and to develop Plan level solutions to address these issues.

Irish Water's National Water Resources Plan (NWRP) will be the first resources plan for the public water supply in the Republic of Ireland. It will allow Irish Water to integrate Government Policy, Legislation and external factors that have the potential to impact Irish Water supplies into the planning and operation of its existing and future supply asset base.

As a basis for broad public and stakeholder engagement, the NWRP (the Plan) will be delivered in two phases. In the first Phase, the Framework Plan, Irish Water consulted on the methodologies that it has developed in order to identify need and find solutions to address need across all of its supplies. The Framework Plan was adopted by Irish Water in May 2021. Irish Water also assessed the need across each of the 539 public water supplies nationally, in terms of:

- **Water Quantity** that Irish Water can provide;
- **Water Quality** that Irish Water can provide; and
- Performance of and operational efficiency of Irish Water's **Asset Base**.

Water Resources Plans are reviewed on a cyclical basis to take account of new information, data, policies and laws and are usually updated every 5 years in other jurisdictions. Irish Water knows things will change over the next 25 years so within the NWRP it has considered a range of possible futures, some more challenging than others. This approach is called adaptive planning, and means Irish Water is ready and flexible whatever the future holds and will formally update the NWRP every 5 years.

The requirement for the NWRP was identified in Irish Water's Water Services Strategic Plan (WSSP) published in 2014 which sets out the company's objectives in relation to the provision of water services for the State over a 25 year period.

As this is Irish Water's first NWRP, it was considered necessary to divide the public water supply system into the regional groups (as more clearly outlined in the Framework Plan and the draft Regional Water Resources Plans (RWRPs)). The regional boundaries are only relevant for the development of the first NWRP and have been identified as the most appropriate way to allow Irish Water to identify Preferred Approaches (water supply solutions) in an efficient and timely manner. Once the first NWRP has been finalised, while it is comprised of the Framework Plan and four RWRPs, together they will be treated as a unified plan. The relevant regional groupings will have no ongoing application for Water Supply in Ireland.

The Water Treatment Plants (WTPs) feed water into supply areas known as Water Resource Zones (WRZs). Each WRZ is an independent water supply system serving a region, town or village and is also governed by topography or the extent of the water distribution network in an area. Within a WRZ most customers receive the same Level of Service (LoS), measured as a probability of interruption to services (for example one interruption to supply in 50 years). There are 539 WRZs in the Republic of Ireland. These range in size, serving populations of less than 30 people (small rural areas) up to 1.6 million people (Greater Dublin Area (GDA)).

The Republic of Ireland has a dispersed population and water supplies were historically developed in response to need in the immediate vicinity. As a result, some supplies were developed using surface or groundwater sources with limitations in terms of quantity available and/or variable raw water quality.

Also, due to long term under investment in water services many of Irish Water's water supply assets (WTPs, water mains etc.) are in need of upgrades or additional infrastructure is required.

"The objective of the National Water Resources Plan is to secure a safe, sustainable and reliable drinking water supply for everyone."

1.2 Water Resource Planning

The NWRP aims to ensure that water resources are used in an efficient and sustainable way over the long term, giving due consideration to short term operational issues that may occur. The NWRP will cover the entire country, this is a large spatial area than would be considered by most water resources plans and, as a result, it is being delivered in two phases:

Phase 1 is the Framework Plan and includes the methodology Irish Water used to develop the Plan and an Assessment of Need in terms across each of Irish Water's 539 public water supplies nationally in terms of:

- **Water Quantity** that Irish Water can provide;
- **Water Quality** that Irish Water can provide; and
- Performance and operational efficiency of Irish Water's **Asset Base**.

The Framework Plan is available online at https://www.water.ie/projects/strategic-plans/national-water-resources/ . The draft Framework Plan was subject to SEA, AA and public consultation and the Final Framework Plan was adopted in May 2021.

Phase 2 will involve identifying Preferred Approaches to address the Need identified in the Framework Plan. In order to manage the delivery of Phase 2, Irish Water has split the public water supply into the four regional groupings shown in Figure NTS 1 and will bring forward the following Phase 2 Regional Water Resources Plans.

- Regional Water Resources Plan: North West (Group Area 1);
- Regional Water Resources Plan: South
- West (Group Area 2); Regional Water Resources Plan: South East (Group Area 3); and
- Regional Water Resource Plan: Eastern and Midlands (Group Area 4)

These groupings reflect Irish Water's operational regions, with modifications to account for river catchments; as delineated by the Environmental Protection Agency (EPA) in the River Basin Management Plan. The Regional Water Resources Plans (RWRP) or also known as the Regional Plans will apply the Options Assessment Methodology to the national water supply and develop a programme of

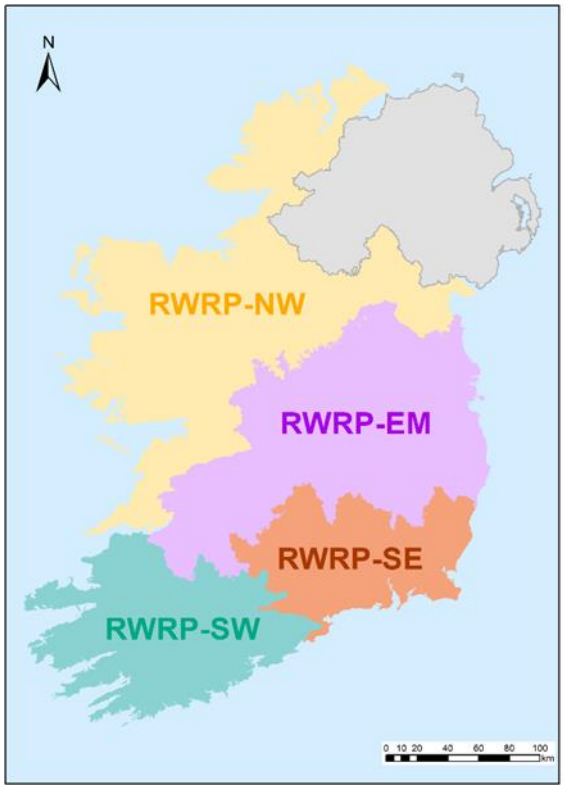


Figure NTS 1 Regional Group Areas for Phase 2

Figure NTS 2 Components of the National Water Resources Plan

preferred short, medium and long term solutions, and/or groups of solutions, to address identified needs for each area of the supply network. The Regional Plans will each be subject to a separate Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) process. Figure NTS 2 summarises the component parts of the NWRP and how these interact.

1.3 Strategic Environmental Assessment

A SEA is required for the draft Regional Plan (RWRP-SW) under the SEA Directive (2001/42/EC), which requires an assessment of the effects of certain plans and programmes on the environment. The transposing Irish Regulations are the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004) as amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I. No. 200 of 2011) (the SEA Regulations). Therefore, as part of preparing the draft RWRP-SW, Irish Water is undertaking a SEA. In addition, the preparation and implementation of the draft Framework Plan [and RWRP's] must meet the provisions of the Habitats Directive (92/43/EEC). The supporting information for the appropriate assessment (AA) for the RWRP-SW has been documented in a Natura Impact Statement (NIS), alongside the SEA Environmental Report. Irish Water will complete AA having regard to the NIS and all relevant submissions and observations received in statutory consultation. These assessments have formed an integral part of the development of the Irish Water's methodology for option and approach assessment and selection. The objective of the SEA process is to ensure that environmental objectives and sustainability principles are integrated into the preparation of Phase 1 of the Plan; as well as providing an overall assessment of the draft RWRP-SW proposals.

The SEA process is undertaken in four stages:

- **Stage 1: Screening** – to determine whether a SEA is required;
- **Stage 2: Scoping** – sets the context, identifying objectives, problems and opportunities, and establishes the environmental baseline;
- **Stage 3: Identification, prediction, evaluation and mitigation of potential effects** – identification and evaluation of likely significant effects of the draft RWRP-SW, including consideration of alternatives and cumulative effects and determination of measures to mitigate and monitor potential residual effects;
- **Stage 4: Consultation, revision and post adoption** – consultation with statutory consultees and also key stakeholders, environmental organisations, etc. and the public. This may require changes to the draft RWRP-SW and Environmental Report in light of responses. An SEA Statement will be prepared for publication alongside the final adopted RWRP-SW to report on how consultation responses and environmental considerations within the SEA process have influenced the Plan. Implementation of the monitoring programme.

2 Overview of the South West Region

Irish Water is planning to develop a national programme of proposed solutions for reducing and eliminating the SDB deficits for each WRZ, meet water quality requirements and bring greater resilience to the water supply network. The aim of the programme is based around the following three pillars, as shown in Figure NTS 3.

- **Lose Less:** reducing water lost to the system through leakage;
- **Use Less:** reducing water use through efficiency measures; and
- **Supply Smarter:** improving the quality, resilience and security of Irish Water's supply through infrastructure improvements.

Figure NTS 3 Three Pillars to address the key challenges to the draft Framework Plan

Together these pillars will enable Irish Water to optimise its capital and operational interventions to achieve the best outcomes and react to emerging issues.

Supply Demand Balance (SDB) calculations - Is a way of comparing the available resources to supply customers with their projected water needs over time.
Water Resource Zones (WRZ) - are the management units at which resources planning is undertaken, and the SDB is calculated for each WRZ. The draft Framework Plan has identified 539 WRZs in Ireland.
Levels of Service - the reliability of supply that Irish Water customers can expect to receive and is expressed as a frequency or return period of supply failure. For example, if the Levels of Service is stated as 1 in 50, as a customer, you would only ever expect to experience a water outage or severe limitations to your supply, on average, once every 50 years

There are 227 WTPs in the South West Region, which collectively serve 594,400 people or 14% of the population of Ireland, via approximately 5,230 kilometres of distribution network. The size of these WTPs varies, with the largest two in the region producing on average 40% of the water supplied and the remaining 225 producing on average about 60% or 190 Ml/d of the total supply.

The WTPs feed water into supply areas known as Water Resources Zones (WRZs). Each WRZ is an independent water supply system serving a region, city, town or village and is governed by topography or the extent of the water distribution network in an area. Within a WRZ most customers receive the same Level of Service (LoS), measured as a probability of interruption to services and the aim of the NWRP is to bring the LoS across the network to a 1 in 50 LoS I.e. one interruption to the supply in 50 years).

The draft RWRP-SW summarises key issues that impact the quality, sustainability and reliability of our existing water supplies, in this region, including:

- Levels of Service;
- Treatment Capacity;
- Water Quality;
- Network Performance;
- Abstractions potentially at risk of exceeding sustainable abstraction thresholds; and
- Constrained Funding.

In addition, Irish Water also face key challenges over the coming years, which have the potential to exacerbate the current problems in the region, including:

- A growing population;
- A changing climate;
- Changes in land use and emerging contaminants;
- Legislative changes; and
- An Environment in Need.

Addressing these challenges as part of the overall NWRP, ensures that future infrastructure development is proportionate to the identified need and is sustainable, reliable and resilient.

2.1 South West Study Areas

The South West Region is further subdivided into three study areas (SAs) based on WFD catchment and WRZ boundaries within the region, as shown in Figure NTS 4.

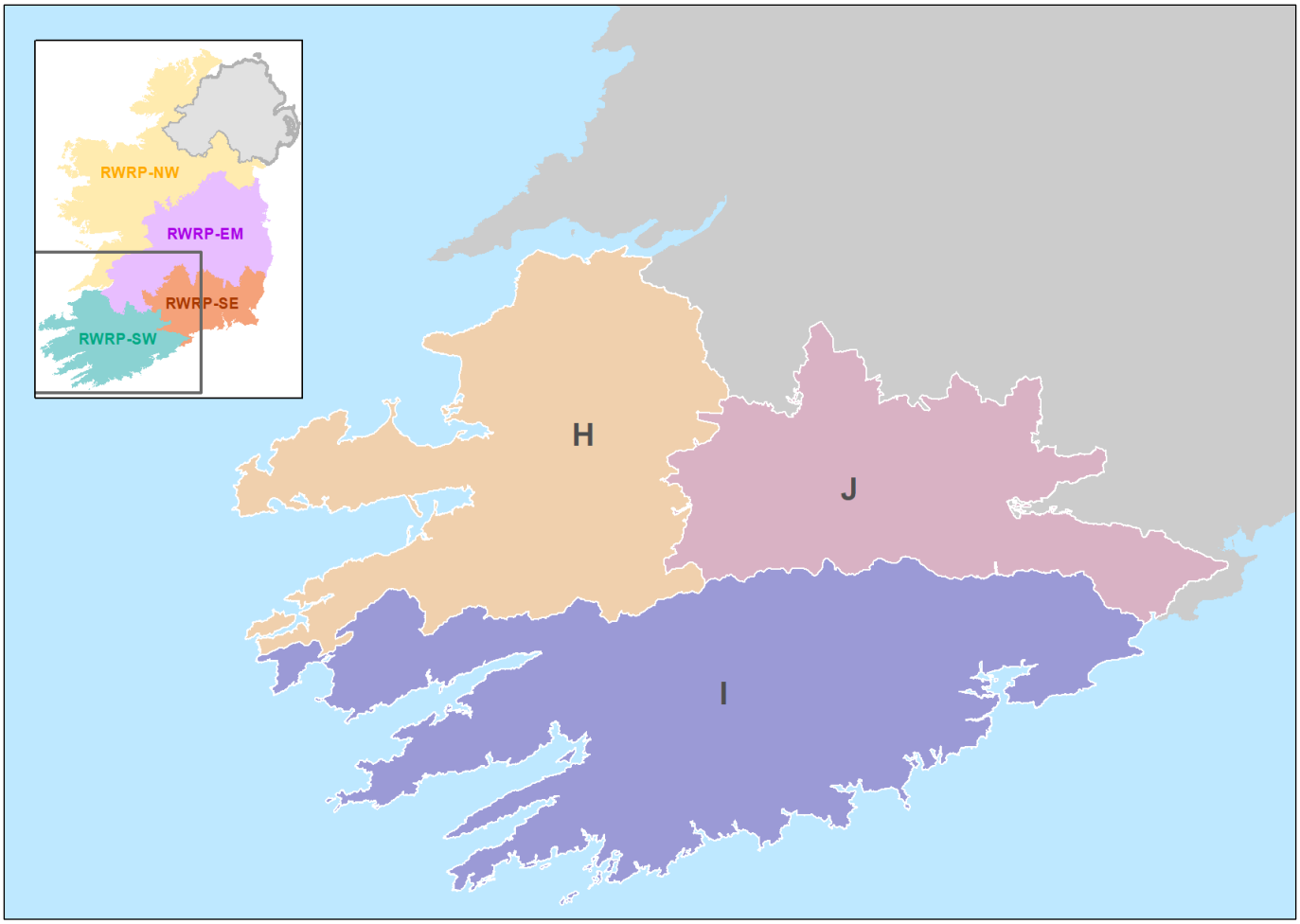


Figure NTS 4 South West Region Study Areas

3 Consultation

Public consultation and stakeholder engagement is a key element in ensuring stakeholders and members of the public have an opportunity to contribute to the development of plans and projects in Ireland. Irish Water is undertaking an accessible, meaningful, and accountable consultation and engagement process with stakeholders and members of the public throughout the development of the NWRP including the Regional Water Resource Plans.

There are two main stages to the engagement and consultation relevant to the draft Regional Water Resource Plan South West (draft RWRP-SW) and this SEA Environmental Report. The overall consultation process for the RWRP-SW is summarised in Figure NTS 5 below:

- **Framework Plan SEA process and consultation** – including SEA scoping consultation and wider engagement on the developing options and approach assessment methodology and the publication of the draft Framework Plan and SEA Environmental report for consultation which focused on setting out the methodology to be applied through the Regional Plans. The NWRP Framework Plan Consultation was adopted in May 2021 and it, along with the SEA Statement and AA Determination, are available on https://www.water.ie/projects/strategic-plans/national-water-resources/; and

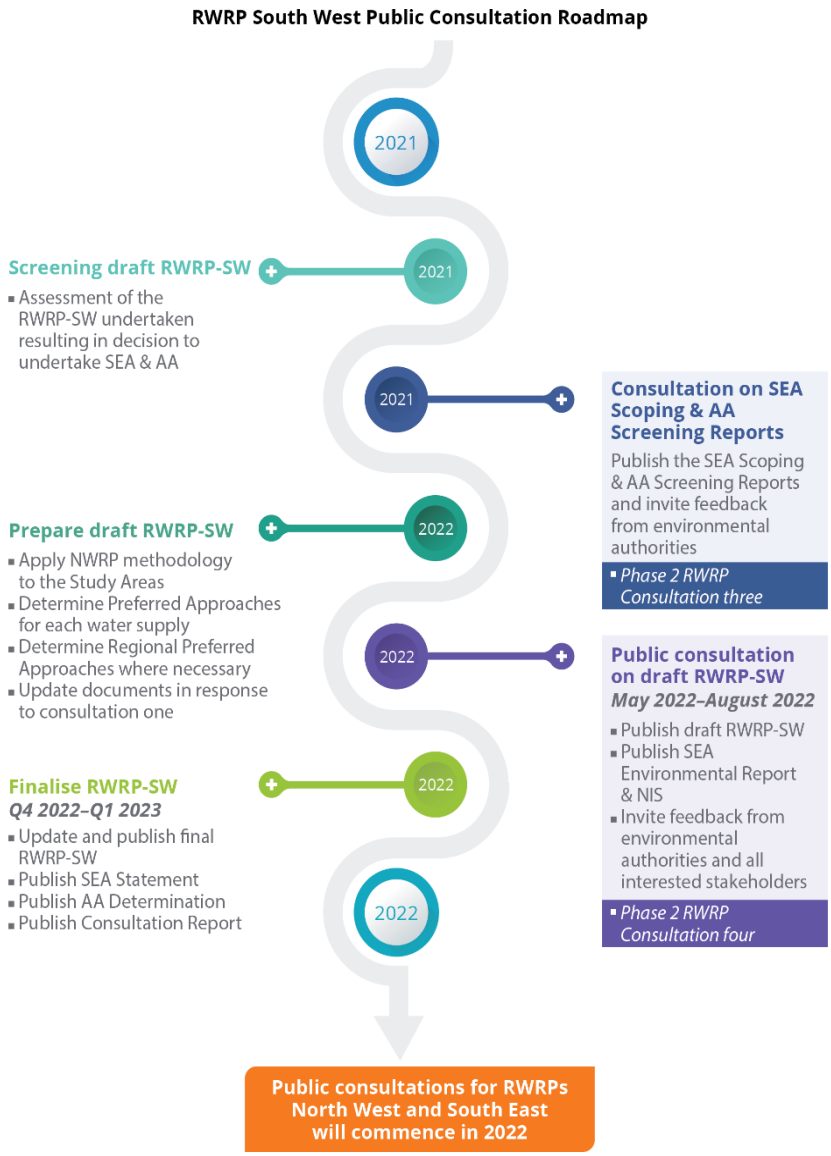


Figure NTS 5 Consultation Roadmap

- **RWRP-SW SEA process and consultation** – these apply the methodology from the adopted Framework Plan and, as part of the SEA process, scoping consultation has been undertaken and responses have informed the SEA and draft RWRP-SW development.

The draft RWRP-SW has been developed applying the methodology from the adopted Framework Plan and SEA taking account of the consultation received through that process so although a separate formal process is followed for each Regional Plan, it is closely linked to the Framework Plan.

3.1 Consultation 1 scoping stage

A SEA scoping report was consulted on In line with Article 9 (5) of the SEA Regulations (S.I. No. 435 of 2004), and was issued to the following statutory Environmental Authorities:

- The Environmental Protection Agency;
- Department of Housing, Local Government and Heritage;
- The Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (DTCAGSM)[1];
- The Department of Agriculture, Food and the Marine (DAFM);
- Department of the Environment, Climate and Communications (DECC);
  and
- NI Department of Agriculture, Environment and Rural Affairs (DAERA).

This SEA Scoping Report is available online at the following website: https://www.water.ie/nwrp.

The scoping consultation commenced on 12th November 2021 and closed on the 14th December **2021** and comments received have been considered.

Responses to the comments for SEA scoping consultation are provided in Appendix G to the SEA Environmental Report and range from amendments to include additional policy and legislation in the Policy, Plans and Programme review, provision of additional explanation on how expected legislation will be addressed, provision of additional information the assessment of sustainability of surface and groundwater abstractions, commitments to improve data collection going forward, undertake ongoing monitoring and feedback within the 5 year plan cycle and for involvement in collaborative engagement for the plan development and implementation.

This NTS together with the SEA Environmental Report has been published on the Irish Water (https://www.water.ie/nwrp) alongside the draft RWRP-SW and the NIS. The SEA Environmental Report outlines the assessment of the Regional Plan, including effects on the environment and proposed mitigation. In accordance with Article 11 of European Communities (Environmental Assessment of Certain Plans and Programmes (S.I. No. 435 of 2004), SEA environmental authorities, as well as any relevant transboundary authorities (for example, Northern Ireland Environmental Agency), have been notified so that they may make a submission or observation in relation to the SEA Environmental Report or the Regional Plan to Irish Water.

Irish Water has referred to this SEA Environmental Report and the NIS when preparing the Regional Plan of the NWRP. The reports are now on display for a 12-week statutory public consultation. Further information on the consultation on the Regional Plan, SEA Environmental Report and NIS is provided in chapter 9 of this report.

[1] When scoping was undertaken for the South West Regional Plan the Minister for Minister for Tourism, Culture, Arts, Gaeltacht, Sport and Media was the appropriate Minister for the purposes of SEA and AA legislation. These functions has now been transferred to the Minister for Housing, Local Government and Heritage pursuant to the Heritage (Transfer of Departmental Administration and Ministerial Functions) Order 2021

4 Review of Relevant Plans, Policies and Programmes

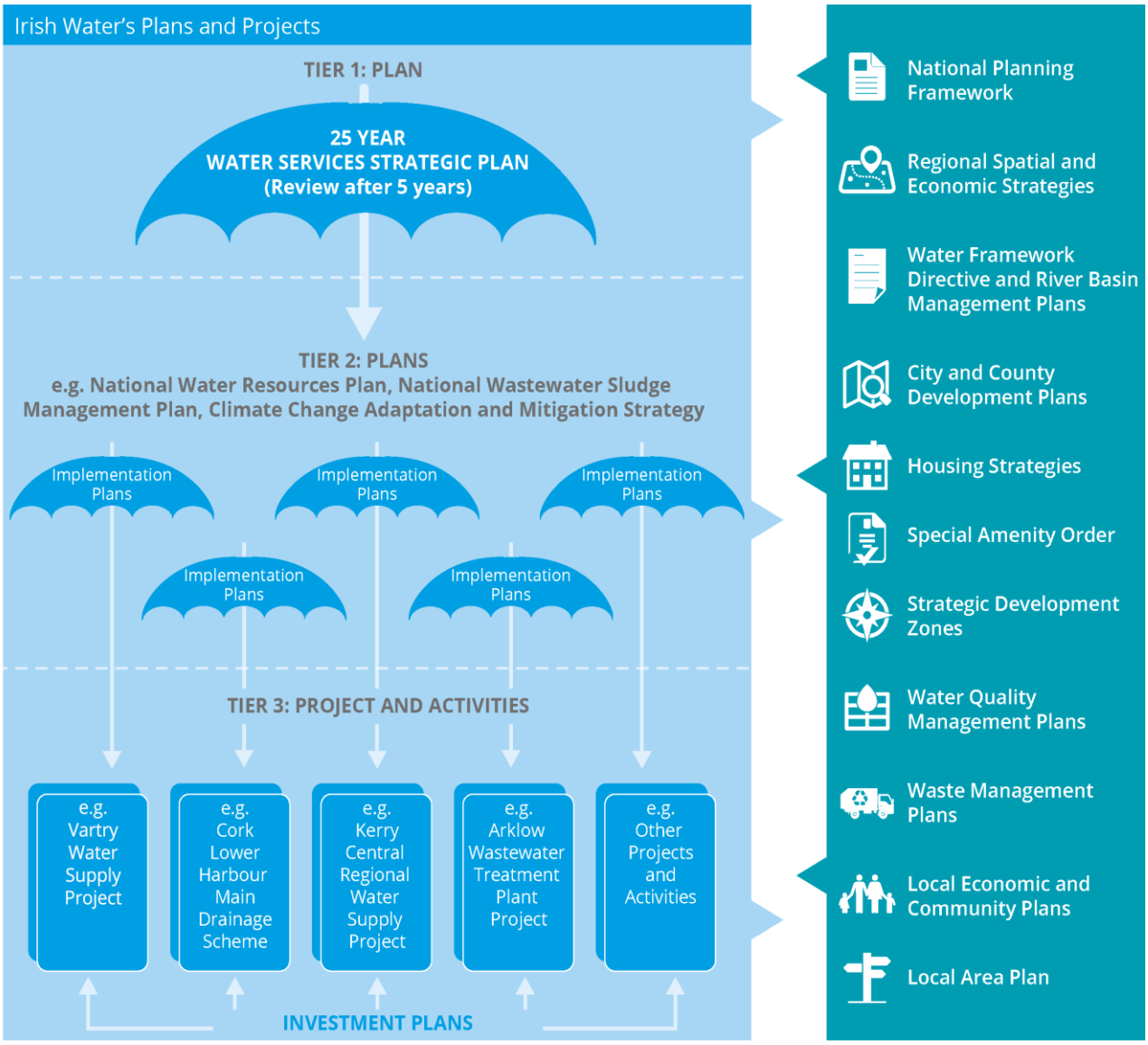
A review of, the relationship with the relevant policy, plan, programme and legislative framework was conducted as part of the SEA Scoping Report for RWRP-SW and has been further refined following that consultation process. This was an important part of setting the context for the SEA. The review process has informed the scope of the SEA, the focus for identifying the baseline environment and the development of the SEA objectives. Key influences identified at the national level which also apply to the Regional Plan include:

- UN Sustainable Development Goals (SDGs);
- EU WFD (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy);
- EU Drinking Water Directive (Directive 2020/2184 of the European Parliament and of the Council on the quality of water intended for human consumption (recast) (DWD);
- River Basin Management Plan for Ireland 2018-2021 (the draft 2022-2027 Plan was published for consultation in September 2021);
- National Adaptation Plan (NAP) & Adaptation Plan for Water Quality and Water Services Infrastructure;
- Climate Action and Low Carbon Development Act 2015 (as amended 2021);
- Climate Action Plan (CAP);
- General Scheme on Water Environment (Abstractions) Bill 2020;
- National Planning Framework – Project Ireland 2040;
- National Adaptation Framework Sectoral Adaptation Planning;
- Regional Spatial and Economic Strategy (RSES) for the Eastern and Midlands Region, RSES for the Southern Region and RSES for the Northern and Western Regional Assembly; and
- Related Irish Water plans and strategies including the Water Services Strategic Plan (Tier 1 plan), National Wastewater Sludge Management Plan, Lead in Drinking Water Mitigation Plan, sustainable Energy Strategy - Climate Change Mitigation and Adaptation Strategy, Leakage Reduction Programme and National Disinfection Programme.

A focussed list of additional local level plans policies and strategies relevant to Regional Plan for the South West specifically is provided in the SEA Environmental Report, Appendix F, section F.2. Regional and local level plans likely to be key for the purposes of the SEA for the Regional Plan fall under five main groups as follows:

- County Development Plans, Local Area Plans and Town Development Plans – Planning Authorities are legally required to make County and City Development Plans which sets an agenda for development to make adequate provision for the scale of population growth projected;
- County Heritage Plans and County Biodiversity Action Plans – these plans help ensure targets for species and habitat conservation in the National Biodiversity and Heritage Plans are effective at a local level;
- County Climate Change Adaptation Strategies and Climate Action Plans – these strategies and plans establish future climate risks at a local level and propose actions to adapt to currently observed and future climatic changes;
- County Landscape Character Assessments – these assessments classify and describe the landscape in a county; and

- Regional Waste Management Plans.



It should be noted that the listing of the documents on the right of the graphic is not intended to show a hierarchy of plans or an alignment of the plans with the Irish Water Tier 1, Tier 2 and Tier 3 plans/ projects.

Figure NTS 6 Interaction between the Planning System and Irish Water's Plans and Programs

5 Baseline Environment

This section sets the proposed geographical and temporal scope of the SEA for the Regional Plan, and provides environmental baseline information on key environmental topics including:

- Population, Economy, Tourism and Recreation, and Human Health;
- Water Environment;
- Biodiversity, Flora and Fauna;
- Material Assets;
- Landscape and Visual Amenity;
- Air Quality and Noise;
- Climate Change;

- Cultural Heritage; and
- Geology and Soils.

5.1 Scope of the Assessment

5.1.1 SEA Geographical Scope

At this stage of the assessment the core baseline area for the SEA of the Regional Plan for the South West is the area covered by the three study areas which comprise the South West Region (see Figure NTS 7) and sites designated for nature conservation that are hydrologically connected to waterbodies in the core baseline area. The assessment process undertaken for the SEA and AA during evolution of the Plan will consider the potential for linkages of this type, and where necessary, the geographic scope of the core baseline area will be extended accordingly.

Figure NTS 7 Water Supply Zones and Key Settlements in the South West Region

5.1.2 Transboundary Effects

The RWRP-SW will solely cover Irish Water's operational area for the South West which lies approximately 200 km from the boundary between the Republic of Ireland and Northern Ireland. Transboundary effects are not predicted on the basis that the border with Northern Ireland is at the distance noted and there are no shared WFD catchments units, marine areas or other pathways for effects and therefore transboundary effects are scoped out for the RWRP-SW. Transboundary policies and plans have been reviewed as listed in Appendix F and potential for transboundary effects associated with plan proposals have been considered through the assessment process and findings are included in this Environmental Report. No transboundary effects have been identified through this process. The draft RWRP-SW, SEA Environmental Report and NIS will be provided to the relevant Northern Ireland agencies as part of the consultation process.

5.1.3 SEA Temporal Scope

The proposed temporal scope for the SEA is the 25-year period between 2019 and 2044 that is covered by the Framework Plan and draft RWRP-SW.

5.2 High Level Environmental Trends in the SW Region and Across Ireland

The EPA's latest State of the Environment Report (SOER 2020) (EPA, 2020) provides:

- An assessment of the overall quality of Ireland's environment;
- An outline of the pressures being placed on this environment; and
- The key actions that can address these pressures.

The following areas identified as challenges to address across Ireland within the SOER 2020 are particularly pertinent to development of the RWRP-EM:

- **Climate:** high greenhouse gas (GHG) emissions continue, and the scale and pace of GHG reductions must accelerate to meet 2019 Climate Action Plan targets;
- **Water:** deteriorating water quality trends over the last 20 years, particularly for rivers; and
- **Nature:** deteriorating protected habitat trends, with 85% of EU protected habitats having unfavourable status. Trends for EU protected species are mixed, however freshwater species are most at risk and some freshwater species are under threat.

Waste and the circular economy and air quality are also areas where further action is needed to meet long-term objectives and targets.

These three key challenges of relevance to the RWRP-SW are directly linked to the following UN Sustainable Development Goals (SDG):

- **SDG 13 Climate Action:** Take urgent action to combat climate change and its impacts;
- **SDG 14 Life Below Water:** Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and
- **SDG 15 Life On Land:** Protect and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Significant population increase is anticipated over the coming two decades, which is an important consideration for water demand, and subsequently for the water environment and compliance with the WFD Directive and SDG 14.

5.3 Baseline Topic Interactions, Issues and Opportunities

5.3.1 Interrelationships between SEA topics

In accordance with the SEA Directive, it is a requirement to recognise the interrelationships between environmental topics, as changes to one environmental aspect can directly or indirectly influence others. Table NTS 5.1 below indicates the potential interrelationships between SEA topics demonstrating most topics interact to some level in a range in some circumstances. Key interactions are highlighted.

Table NTS 5.1 Interrelated SEA topics

SEA topics	Population, local economy, tourism and recreation, and human health	Water environment	Biodiversity	Material assets	Landscape and visual amenity	Air quality and noise*	Climate change	Cultural heritage
Water environment								
Biodiversity,								
Material assets								
Landscape and visual amenity								
Air quality and noise*								
Climate change								
Cultural heritage								
Geology and soils								

Key	Interaction		Key areas of interaction		No interaction	

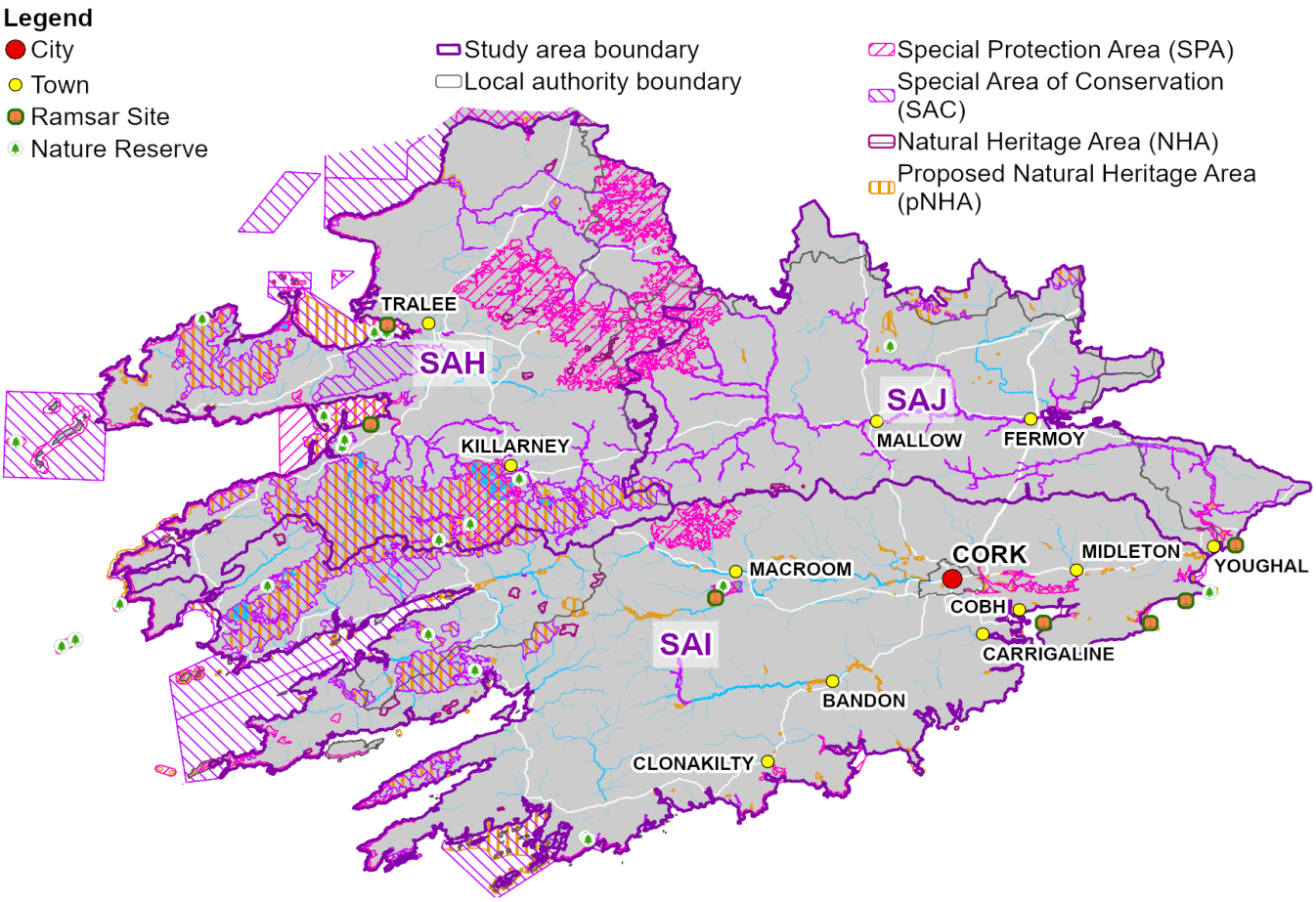


Figure NTS 8 Environmental Designations for the South West Region

Table NTS 5.2 Key Issues and Opportunities

SEA Topic	Issues and Opportunities
Population, Economy, Tourism and Recreation, and Human Health	**Issues**: Increasing population and the increased stress of climate change on water quality and water resources could affect health and wellbeing. **Opportunities**: Irish Water will put in place plans to assess water quality and put in place measures to address risks as part of the NWRP. Irish Water has ongoing activities to improve the SDB across the South West Region, including, leakage management and water conservation measures. Raising awareness of the importance of water conservation and efficiency measures, and the value of the environment for health and wellbeing, can play an important part in water planning along with valuing water as part of access to environment for recreation.
Water Environment	**Issues**: The proposed abstraction licensing, aligned to WFD requirements, will require many current abstractions to be licensed and may limit future abstraction or involve significant conditions at associated sites. Across the South West Region some of the existing abstractions are potentially unsustainable in the medium term; specifically, during drought periods. Irish Water will need to update their sustainability analysis and impact on their baseline SDB calculations when regulatory assessment for new legislation is undertaken. Groundwater and flood risks and vulnerability are potential issues for water supply and environment but detailed siting and design through the more project development stages

SEA Topic	Issues and Opportunities
	is expected to take account although the plan assessment aims to identify strategic level risk. **Opportunities**: To take account of identified pressure on the water environment in the selection of solutions for individual study areas and opportunities for reducing pressures on resource and improving water quality.
Biodiversity, Flora and Fauna	**Issues**: It is considered especially important to avoid the loss of irreplaceable or rare habitats and increasing pressure on vulnerable species; potentially through direct land take or indirect such as through increased abstraction pressure. **Opportunities**: Potential for enhancement through reducing pressure on sensitive sites or building in requirements such as habitat enhancement in to schemes and identifying potential for nature-based solutions and catchment management.
Material Assets	**Issues**: WTP assets and network infrastructure requiring improvement or replacement. **Opportunities**: Improvements to support reliability of access to good quality water.
Landscape and Visual Amenity	**Issues**: Potential for climate change to affect land use and influencing landscape character, quality and amenity.
Air Quality and Noise	No specific issues identified for the baseline for the South West Region related to the types of options and combinations under consideration for the draft Regional Plan. Disturbances related to construction impacts are addressed in terms of receptors within the population and health topic.
Climate Change	**Issues**: Climate change issues regarding sea level rise, flooding, extreme weather events and changes in seasonal weather patterns. Climate change has been taken into account in supply forecasts and additional risks to infrastructure and operations will need to be taken into account in planning for drought and freeze/thaw events and in detailed scheme design and network operation. **Opportunities**: Additional management to minimise impact on supply and the environment, vulnerability to climate change and drought is required.
Cultural Heritage	**Issues**: Known cultural heritage and archaeological assets and potential unknown archaeological assets could be affected by construction works or change to setting or access. Potential for hydrological changes to affect heritage and archaeological assets.
Geology and Soils	**Issues**: Potential loss of soils or pollution from runoff - general need for good soil conservation and retention of nutrients and carbon in soil resources. **Opportunities**: Improve soil carbon and retention of nutrients contributing to improving water quality.
Interactions between topics	Key interactions include links between biodiversity and water resources and climate change and between soils, land management, water quality, biodiversity, flood risk, and climate change.

6 SEA Assessment Methodology

6.1 Strategic Environmental Assessment objectives

The set of SEA objectives developed for the Framework Plan SEA Phase 1 scoping stage have been refined and finalised following consultation (see Table NTS 6.1). These have been influenced by the plans, policies and programmes review, the baseline trends and pressures identified, and the scope of the assessment as defined in chapter 6 of the SEA Environment Report for the Framework Plan and the SEA Scoping Report for RWRP-SW and consultation comments.

The methodology for the assessment was developed in accordance with the following EPA guidance:

- Developing and Assessing Alternatives in Strategic Environmental Assessment (SEA);
- Guidance on SEA Statements and Monitoring;
- Integrating Climatic Factors into Strategic Environmental Assessment in Ireland - A Guidance Note;
- Good practice guidance on Cumulative Effects Assessment in SEA; and
- Guidance on the Authorisation of Direct Discharges to Groundwater[2]

Table NTS 6.1 SEA Objectives

SEA Topic	SEA Objectives*
Population, economy, tourism and recreation, and human health	Protect and, where possible, contribute to enhancement of human health and wellbeing and to prevent restrictions to recreation and amenity facilities relating to the provision of water services.
Water environment	<u>Water quality and quantity</u> Prevent deterioration of the WFD status of waterbodies with regard to quality and quantity due to Irish Water's activities. Contribute towards the "no deterioration" WFD condition and, where possible, to restore and improve waterbody status for rivers, lakes, transitional and coastal waters, and groundwater to meet WFD objectives related to the provision of water services.
	<u>Flood risk</u> Protect and, where possible, reduce risk from flooding as a result of Irish Water's provision of water services.
Biodiversity	Protect and, where possible, enhance terrestrial, aquatic and soil biodiversity; particularly regarding European sites and protected species in providing water services.
Material assets	Minimise resource use and waste generation from, new or upgraded, existing water services infrastructure and management of residuals from drinking water treatment - to protect human health and the ecological status of waterbodies. Minimise impacts on other material assets and existing as well as future water abstractions.
Landscape and visual amenity	Protect and, where possible, enhance designated landscapes in relation to the provision of water services.

[2] Guidance on the authorisation of direct discharges to groupdwater (2014) added in response to a EPA scoping comments although none of the options considered for the South West include groundwater discharges.

SEA Topic	SEA Objectives*
Climate change	Climate change mitigation Minimise contributions to climate change emissions to air (including greenhouse gas emissions) as a related to the provision of water services.
	Climate change adaptation Promote the resilience of the environment, water supply and treatment infrastructure to the effects of climate change.
Cultural heritage	Protect and, where possible, enhance cultural heritage resources related to provision of water services.
Geology and soils	Protect soils and geological heritage sites and, where possible, contribute towards the appropriate management of soil quality and quantity.

*In response to scoping consultation comments, clarifications have been made to the SEA objectives to refer to 'water services' rather than activities provided by Irish Water and also to the water environment objective to broaden this objective to include supporting WFD objectives where possible.

These high-level SEA objectives are used as the framework for the assessment of likely significant effects from the draft RWRP-SW compared to 'Without Plan' alternatives and also for each of the potential water supply and demand options (construction and operational phases). The potential for mitigation of effects during plan implementation and for the different option types are considered.

6.2 Options and Approach Assessment Summary

The methodology applied and how the SEA objectives and environmental assessment has been integrated into the application of the methodology, is summarised below.

The methodology is based around an option development process consulted upon and finalised in the Framework Plan. The process aligns with the seven standard steps set out in the Department of Public Expenditure and Reform (2019) guidance document "Public Spending Code: A Guide to Evaluating, Planning and Managing Current Expenditure". For the NWRP methodology, there are eight key stages to the options assessment methodology which is applied:

1) Identifying need - based on Supply Demand Balance (SDB) and/or Drinking Water Safety Plan Barrier Assessment.
2) Scoping of the Study Area (WRZs) – understanding the Study Area and the existing conditions of assets, supply and demand issues as well as environmental constraints and opportunities.
3) Identifying potential options for consideration relevant to the Study Area.
4) Coarse screening – assess the unconstrained options and eliminate any that will not be viable
5) Further option definition, information collection and preliminary costing.
6) Fine screening – options assessment and scoring against the key criteria with further removal of options identified as unviable and development of feasible options for costing (including environmental and social costs and benefits) and scoring assessment update.
7) Approach appraisal – comparison and assessment of combinations of options identified to meet the predicted supply demand deficit at WRZ, Study Area and Regional Group area level using Multi-Criteria Analysis (MCA) to determine the Preferred Approach. Approaches tested include:
    - Least Cost;
    - Best Appropriate Assessment (Best AA);

- Quickest Delivery;
- Best Environmental;
- Most Resilient; and
- Lowest Carbon.

8) Monitoring and Feedback into Plan – a feedback mechanism to ensure that the Framework Plan continuously adapts to changes such as evolving scientific data, understanding, and policy change in relation to the natural environment.

The SEA process has been applied across each of these steps as identified in Figure NTS 9 below.

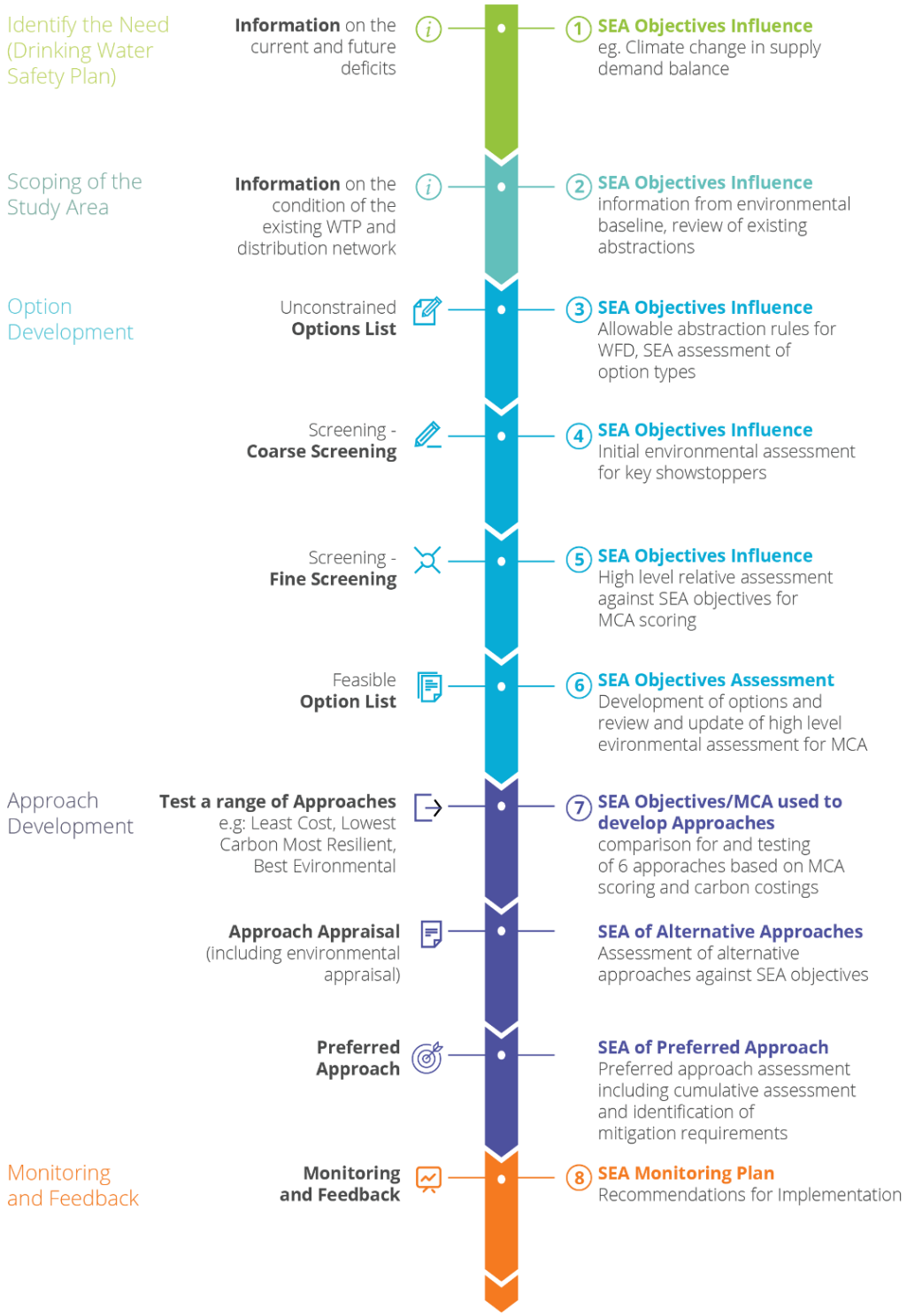


Figure NTS 9 Options Assessment and Preferred Approach

The methodology is focused on ensuring that Irish Water promote solutions that are resilient, environmentally and socially sustainable, and flexible to the changing environment and demands.

6.3 Stages 1, 2 and 3 – Option identification

The SDB and the Barrier Assessment inform the type and scale of options that Irish Water must consider. Key option types are shown in Figure NTS 10. Sub-variants of each option type are also considered.

Figure NTS 10 Option

Environmental and social assessment criteria are included at the earliest stages of the screening process. At the outset of the process, some fundamental rules are applied as part of option identification. For example, inter-catchment raw water transfers are excluded due to the high risk of transferring invasive non-native species (INNS) between catchments and potential conflict with WFD objectives.

WFD objectives have also been a key consideration at this stage through a sustainable abstraction risk review. This was a specialist review of groundwater bodies and surface water catchments that was undertaken as part of the option identification stage. UK Technical Advisory Group on the Water Framework Directive (UKTAG) guidance (UKTAG, 2013) on baseflows have been used until Ireland specific standards come into place.

The application of these conservative abstraction standards to new options ensures that any new or increased abstractions from rivers are likely to support conservation objectives for the most sensitive environmental sites. For surface waterbodies, the allowable abstraction standard of 10% of Q95 has been applied, with the exception of waterbodies requiring 'High' status where a higher threshold of 5% of Q95 has been applied. Allowable abstraction standards for lakes are set at 10% or 5% of Q50 in line with this guidance (the NIS sets out the approach in relation to Appropriate Assessment).

In the future, Irish Water are likely to have to reduce or remove their unsustainable existing abstractions.

Based on these desk assessments, Irish Water developed an initial list of unconstrained options for new supplies, increases and upgrades to existing supplies. An Unconstrained Options review workshop was held with Irish Water's Local Authority Water Services Partners to identify any additional unconstrained options that might be available based on local knowledge.

6.3.1 Option Scale

Options to address the water supply deficits are developed at three different spatial scales:

- **WRZ Options** comprised of single or multiple options that can resolve the water supply deficit of a **single WRZ only**.
- **SA Options (Grouped Options)** comprised of single or multiple options that can resolve the water supply deficit of more than one WRZ within a single Study Area.
- **Regional Level -** Feasible Options are assessed at the Regional Area level to see if there are any options, or combination of options, that can be applied across the entire Region.

The approach to developing options at the three different scales is described in further detail in Section 6.1 of the draft RWRP-SW

6.4 Stages 4, 5 and 6 - Option Screening

The Supply Demand Balance (SDB) and Barrier Assessment (outlined in Section 3 of the draft RWRP-SW) inform the type and scale of options that Irish Water must consider.

Irish Water identified ,1676 unconstrained options for the draft RWRP-SW.

The unconstrained options list was refined using a coarse screening assessment, which enables Irish Water to rule out any non-viable options. This included removing options that could be identified at this stage as unsustainable or where significant environment impacts were considered likely and un-mitigatable. The remaining options known as “Constrained Options” were then carried forward for more detailed Multi Criteria Assessment (MCA) at the Fine Screening stage.

The options were assessed against the SEA objectives options and this was used as the basis for the MCA scoring. The fine screening assessment could identify additional showstoppers and reasons for removing options.

Options passing through the fine screening were identified as Feasible Options were taken forward, with the MCA, for further assessment in the Approach Development phase.

Irish Water rejected 676 Options rejected for the Region after assessment against the coarse and fine screening criteria A total of 268 rejected on criteria including environmental sustainability. The remaining 1,000 Options were taken forward as Feasible Options for the draft RWRP-SW

6.5 Stage 7 Approach Development

The purpose of the Plan is to examine all potential options that could be used to meet the need and then to eliminate those that are not feasible or that have identifiable environmental issues (at a desktop level).

After Fine Screening the Feasible Options are assessed individually or as option combinations forming different potential approaches to identify the preferred option or combination of options to meet the need for each WRZ, Study Area and Regional area.

A defined process has been identified to develop the Preferred Approach at the three spatial scales shown in Figure NTS 12.

The final stage is to assess any inter-regional options and potential cumulative or in combination effects and determine if any adjustment is required (this will be addressed sequentially in each of the Regional Plans in turn).

STEP 0 Best AA	If there is an option that meets the Objectives of the Plan, and is assessed as having no potential impact on a European Site (based on desktop assessment), it is automatically adopted as the Preferred Approach
STEP 1 Least Cost	Compare Least Cost against **best AA** Approach, and consider again at Step 6
STEP 2 Quickest Delivery	Compare Least Cost against Quickest Delivery Approach and develop Modified Approach if appropriate
STEP 3 Best Environmental	Compare Least Cost or Modified Approach against Best Environmental, and modify approach **if appropriate**
STEP 4 Most Resilient	Compare Least Cost or Modified Approach against Most Resilient
STEP 5 Least Carbon	Compare Least Cost or Modified Approach against **Lowest** Carbon
STEP 6 Approach Comparison	Compare output from Steps 1 to 5 against: • SEA required outcomes • Sectoral Adaptation Outcomes • **Best AA outcomes** • Public Expenditure Code Outcomes
STEP 7 Preferred Approach	Select Preferred Approach based on steps 0 to 6

Figure NTS 12 The 7 Step Process

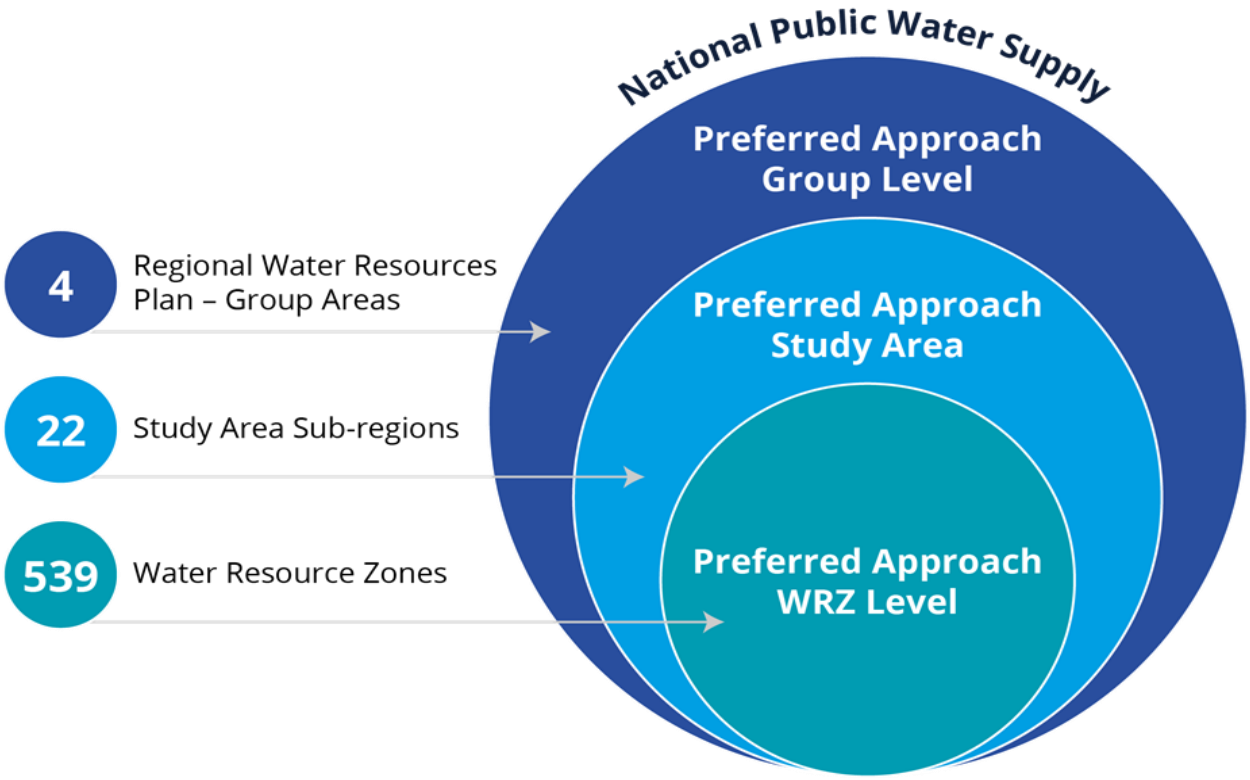


Figure NTS 11 National Water Resources Plan Spatial Scale of Assessment

7 Study Area SEA Summaries

Table NTS 7.1 gives an overview for each Study Area of how options numbers were reduced from the unconstrained long list to the feasible options list through the screening process. The table also sets out the number of potential combinations that were identified that could meet the study area need for supply and water quality over the plan period.

The combinations included a WRZ Option only combination (i.e. looking at all of the WRZ Options required to meet the overall need in the Study Area) but not for Study Areas H and I. The WRZ approaches for SAH and SAI are not feasible approaches as they do not meet the supply deficit as local options are not available for five of the WRZs as local options could result in unsustainable abstractions that do not meet the guideline criteria applied to all new and increased abstractions.

The MCA scoring and cost information was used to test the combinations against each of the six categories (including the best environmental, lowest carbon and best AA categories) to identify the best performing approaches. Some combinations performed best across more than one category, hence the number of approaches identified for each Study Area can be less than six.

The approaches were compared through the 7 step process applied through a workshop to identify the overall best value approach identified as the Preferred Approach. This used the MCA scoring and cost information and took account of how significant the differences were between approaches.

Table NTS 7.1 SA Summary of Assessment

Study Area Description			
Study Area H - lies within the counties of Limerick, Kerry and Cork and its total area is approximately 4,060 km2. There are two principal settlements (with a population of over 10,000), namely Killarney and Tralee (CSO, 2016).			
Study Area I - lies within the counties of Cork (including Cork City) and Kerry and its total area is approximately 5,920 km2. There are four principal settlements (with a population of over 10,000) within SAI, namely Cobh, Midleton, Cork city and suburbs, and Carrigaline (CSO, 2016).			
Study Area J - lies within the counties of Limerick, Cork, Kerry, Tipperary and Waterford and its total area is approximately 3,000 km2. There is one principal settlement (with a population of over 10,000), namely Mallow (CSO, 2016).			
Study Area	**SAH**	**SAI**	**SAJ**
Unconstrained	227 options	946 options	503 options
Coarse & Fine Screening	98 rejected; 74 rejected on sustainability reasons	148 rejected on sustainability reasons	161 rejected; 47 rejected on sustainability reasons
Feasible Options	129 options	530 options	342 options
No of approach Combinations	11 options	Six options	13 options

Preferred Approach Assessment		
SEA objectives	**Potential Construction Impact SAH, SAI and SAJ**	**Potential Operational Impact SAH, SAI and SAJ**
1) Public Health	Neutral to Moderate Adverse	Moderate Beneficial to Moderate Adverse
2) Biodiversity	Minor Adverse to Moderate Adverse	Neutral to Major Adverse
3) Landscape and Visual	Neutral to Moderate Adverse	Moderate Beneficial to Minor Adverse
4) Materials	Neutral to Major Adverse	Neutral to Moderate Adverse
5) Greenhouse Gas	Neutral to Major Adverse	Neutral to Major Adverse
6) Climate Change	Neutral to Moderate Adverse	Neutral to Moderate Adverse
7) Surface Water/ Groundwater	Neutral to Minor adverse	Neutral to Major Adverse
8) Flood Risk	Neutral to Moderate Adverse	Neutral
9) Cultural Heritage	Neutral to Moderate Adverse	Neutral to Moderate Adverse
10) Geology and Soils	Neutral to Moderate Adverse	Neutral

Cumultative effects and mitigation
Potential significant impacts identified for specific options for biodiversity and water environment reflect uncertainty and need for further investigation and mitigation to ensure significant effects are avoided. Cumulative effects identified include combined carbon emissions from embodied and operational carbon. A range of mitigation measures and additional studies and investigations are recommended for individual options and cumulative effects

are set out in the SEA Environmental Report, Appendix D, and section 10: Environmental Action Plan and draft Monitoring Plan

The application of the three stage Approach Development Process resulted in the Preferred Approach at Study Area Level comprising 35 SA Grouped Options that collectively supply 112 WRZs across the South West Region (Table NTS 7.2). This creates an interconnected network and allows Irish Water to rationalise infrastructure providing a more resilient supply to customers. There is also the benefit of moving away from some potentially unsustainable abstractions by reducing abstraction points. The assessment of supplies at a Study Area Level allows consideration of regional sustainability of the abstractions. This rationalisation is described further in section 7.3 of the draft RWRP-SW.

Table NTS 7.2 SA Preferred Approach

Study Area	Number of WRZs	SA Preferred Approach		Number of WRZs benefitting from an SA Option
		WRZ Option	SA Option	
SAH	23	12	6	11
SAI	89	37*	12	53
SAJ	62	14	17	48
Region Total	**174**	**63**	**35**	**112**

*Two WRZ Options are required to meet the supply Deficit in the Whitechurch WRZ in SAI. These include an increase in the existing groundwater source and a new groundwater abstraction.

Option types include new and/or increased groundwater (GW) and surface water (SW) abstractions, rationalisations (connection of WTPs and/or WRZs, usually accompanied by decommissioned abstractions and WTPs) and/or transfers from sources within or outside of the Study Area. The number of options that only comprise a water treatment plant water quality upgrade is also presented for those WRZs that are not in deficit and therefore do not require a new or upgraded resource supply.

Table NTS 7.3 SA Level Preferred Approach Selection

Study Area	SA Preferred Approach Selection Summary
SAH	**The PA is the Least Cost and Best AA approach**. The Preferred Approach for SAH comprises 12 SA Options and 6 WRZ Options. Although not identified as the Best Environmental approach overall (ranking 3rd of 11 combinations) the PA ranks better in the SEA environmental criteria related to lower impact on biodiversity and the water environment. The PA also performs well for carbon cost and supply resilience. Although the PA is the (joint) best AA approach it includes two high-risk options under the Appropriate Assessment criteria: the connection to Central Region and Mid Kerry WRZs involving a new abstraction at Lough Leane; and the new abstraction from Coomasaharn Lake. However, mitigation is identified to address these risks and these are reported in the NIS.
SAI	**The PA is the Least Cost, Best Environmental, Best AA and Most Resilient Approach**. The SA Preferred Approach for SAI comprises 12 SA Grouped Options and 37 WRZ Options.

Study Area	SA Preferred Approach Selection Summary
	The PA is associated with lower materials impacts due to the rationalisation of assets. The PA is also likely to have a lower landscape impact as it requires fewer WTPs and includes decommissioning 43 existing WTPs. Substantial benefits to the water environment are also achieved through the abandonment of 43 of the 110 abstractions, particularly as six (6) of these abstractions may not meet sustainability guidelines during dry weather flows at Tibbotstown, Castletownbere, Glengarrif, Allihies, Cahermore and Caherdaniel/ Castlecove WRZs. The PA has a relatively high carbon impact due to extent of the pipeline network and will take more time to deliver when compared across all seven (7) SA Combinations; however, the low score in these categories is outweighed by the significant gains in resilience and long term contribution to water environment improvement.
SAJ	**The PA is the Least Cost, and Best Environmental.** The SA Preferred Approach for SAJ comprises 17 SA Grouped Options and 14 WRZ Options compared with 62 WRZ Options for the WRZ Level Approach. Both the PA and the WRZ Level Approach have three high-risk Options that could impact on European sites. The PA scores better against the SEA objectives as it is likely to have lower materials impacts due to the rationalisation of assets. It is also likely to have a lower landscape impact as it requires fewer WTPs and decommissions 40 WTPs. The PA provides substantial benefit to the water environment through the abandonment of 39 of the 80 abstractions. In particular, one (1) of the decommissioned abstractions, the River Allow source, currently may not meet sustainability guidelines during dry weather flows. The PA has a relatively high carbon impact due to the extent of the pipeline network and will take more time to deliver when compared across all 14 SA Combinations; however, these aspects are outweighed by the significant gains in resilience and long term contribution to water environment improvement.

7.1 Leakage proposals

Leakage reduction measures are a key component of the Preferred Approach to addressing Need across the South West Region. Irish Water's current leakage targets are to reduce leakage in supplies with demand greater than 1.5Ml/day to 21% of total demand by 2033. Supplies of greater than 1.5Ml/day are found in various locations around the South West Region and the leakage targets equates to a total leakage reduction of 96 Ml/day, which will reduce leakage to 23% of demand across the entire region.

The leakage reductions are assessed as contributing to meeting SEA objectives, especially for climate change and carbon through energy and treatment savings and through reducing water required for abstraction. Construction impacts for works such as mains replacement can include traffic disruption, community disturbance and temporary land take, landscape and biodiversity impacts and water pollution risks but these are generally short term and mitigatable with appropriate construction management and reinstatement commitments.

7.2 WFD and Surface Water Abstractions

Irish Water's assessment identified 54 existing surface water sites where potential abstraction reductions may be required in the future, based on conservative estimates of what a future regime may require.

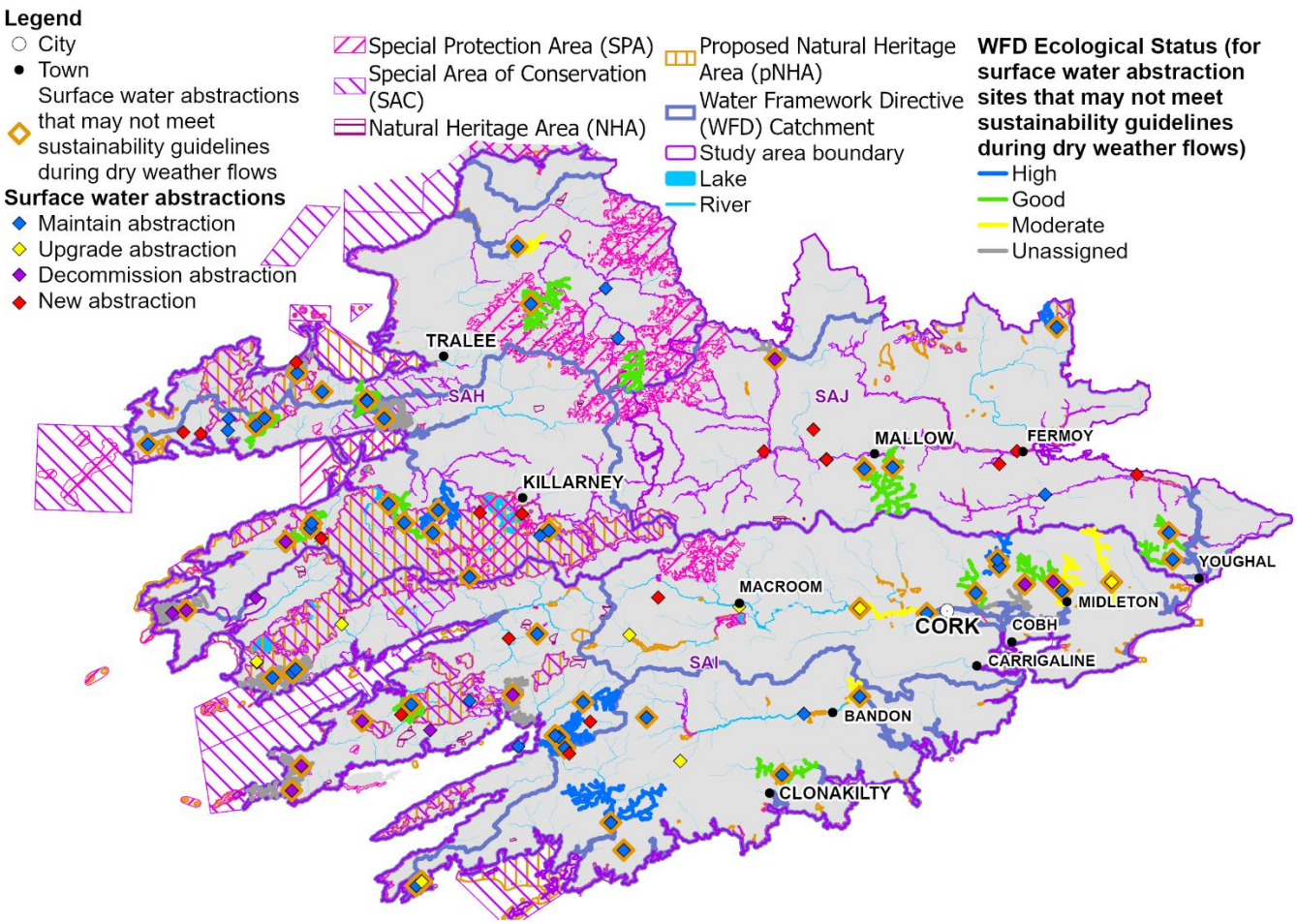


Figure NTS 13 Preferred Approach – Surface Water Abstractions

Table NTS 7.4 Preferred Approach – Existing Surface Water Abstractions Potentially Exceeding Sustainable Abstraction Thresholds

Preferred Approach Outcome	Abstraction Sites		
	SAH	SAI	SAJ
Decommission	2	6	1
Maintain	17	26	3

Groundwater abstractions will need to conform to the proposed new abstraction licencing regime as well. Due to the limited long-term records on pumping and drawdown of water levels for many of Irish Water's groundwater supplies, it is difficult to present robust desktop assessments of water availability for their existing groundwater abstractions. Until site-specific studies of groundwater availability are completed, Irish Water has developed an initial assessment for existing abstractions based on best available information.

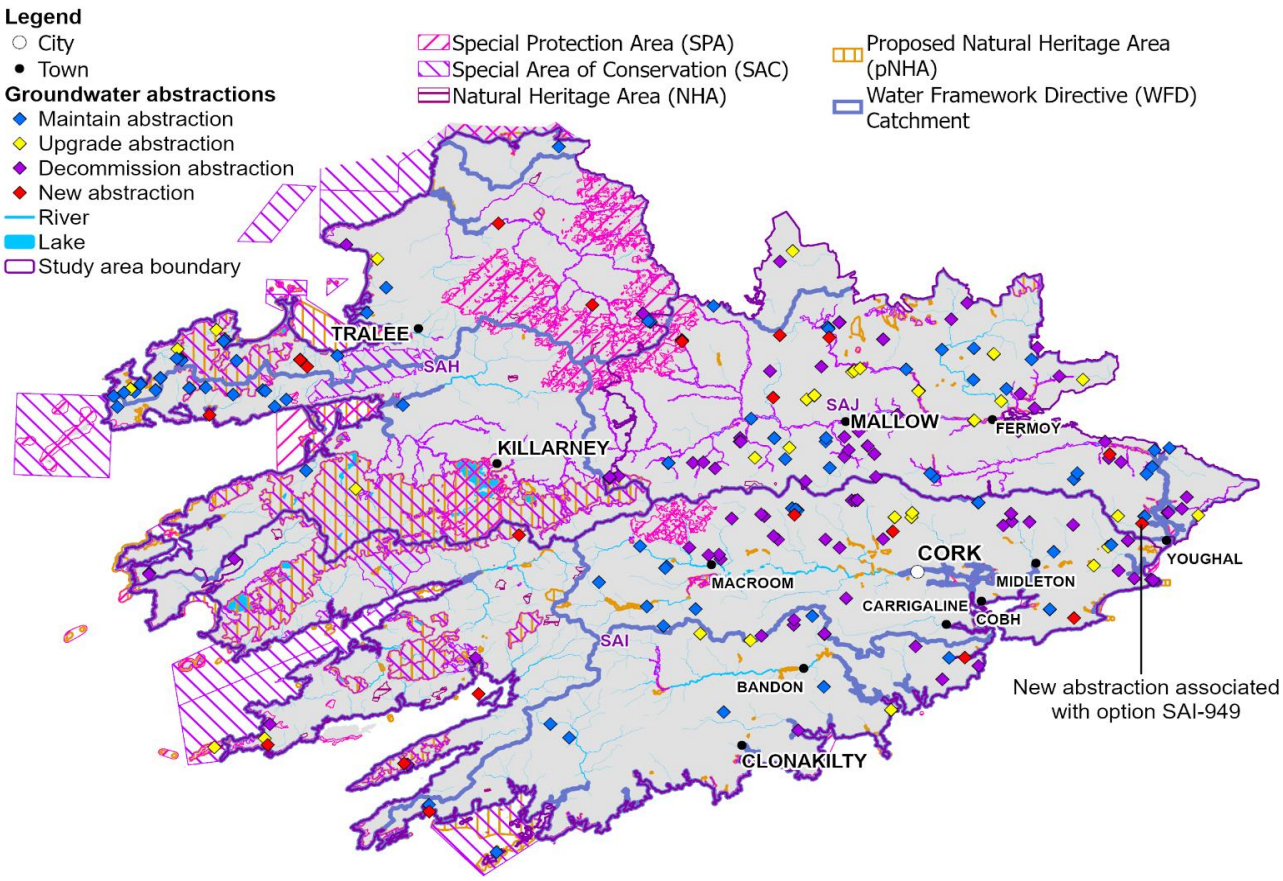


Figure NTS 14 Preferred Approach – Groundwater Abstractions

Figure NTS 14 shows the groundwater abstraction sites in the Preferred Approaches that will benefit from proposed decommissioning.

8 Regional Approach for the draft RWRP

The identification of a Regional Preferred Approach is considered, at a Plan Level in terms of what projects/solutions might work best to meet the overall Deficit in the South West Region. Taking a holistic view of the region presents opportunities to improve the sustainable water resources management and increase operational flexibility and resilience.

While some small Cross Study Area Transfers have been identified, including three inter-regional supplies, the potential for a large feasible option with the capability to provide regional interconnectivity (across Study Area boundaries) is limited by the terrain of the South West Region and the sustainability of the water sources. However, the Approach Development Process at Study Area Level, has identified large, interconnected supplies within the Study Area boundaries which will ultimately increase resilience of supply for customers and support environmental sustainability in the long term. These works are associated with extensive construction works for which will have environmental impacts and risks and these have been assessed for each option and mitigation measures identified in the Study Area Environmental Reviews in Appendix H of the SEA Environmental Report.

9 Cumulative assessment for draft RWRP-SW

A cumulative effects assessment for a water resource management plan should include:

- Effects of measures/options proposed within a plan or programme; and

- Effects between the measures/options proposed within the plan or programme and other projects, plans and programmes.

At the Regional Level, cumulative effects need to be considered in relation to the combined effects from proposals in the three component study areas of the South West regional group area ‘within plan’ and includes consideration of the transfers across study areas and inter regional transfers.

For cumulative effects to occur, there needs to be an overlap of temporal periods in some way for the impacts and/or the effect. For example, two strategic-level schemes being constructed at the same time could result in cumulative traffic movements, while two schemes being operated together could result in a drawdown of groundwater levels. A precautionary approach has been taken for the cumulative effects assessment, which assumes that all options could be constructed at the same time and then all options would be operated at the same time.

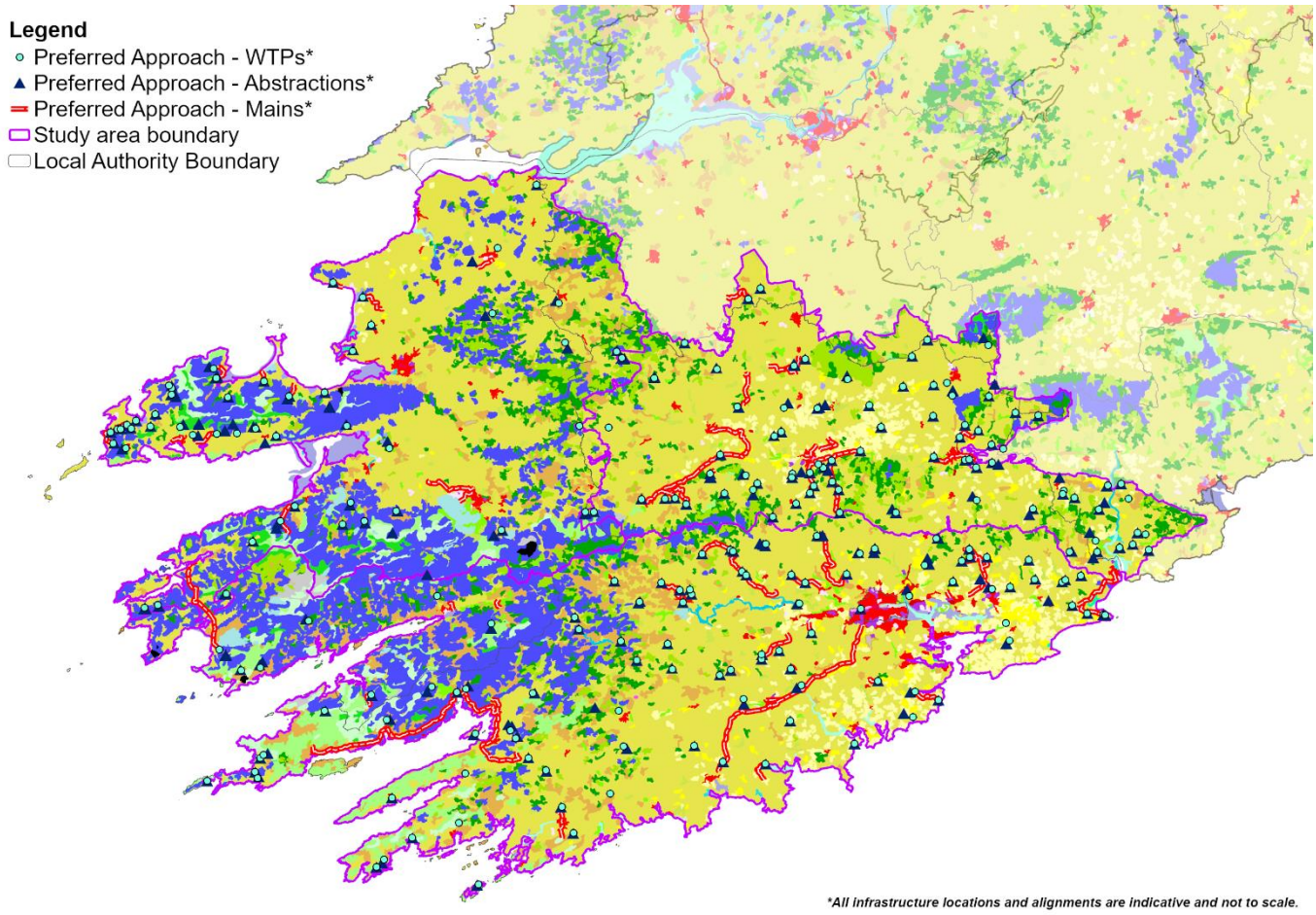
The assessment has considered the cumulative effects across all SEA topics to identify those interactions that are likely to generate significant effects. These are likely to be related to:

- Biodiversity;
- Water environment;
- People and health;
- Landscape and visual;
- Cultural heritage; and
- Climate change.

9.1 Cumulative Effects 'Within Plan'

9.1.1 Overview

The Preferred Approaches across the three study areas are shown in relation to environmental constraints in Figure NTS 15 and Figure NTS 16. Option locations and transfer routes are identified.



Corine Landcover Type

- 111 Continuous urban fabric
- 112 Discontinuous urban fabric
- 121 Industrial or commercial units
- 122 Road and rail networks
- 123 Sea ports
- 124 Airports
- 131 Mineral extraction sites
- 132 Dump
- 133 Construction sites
- 141 Green urban sites
- 142 Sport and leisure facilities
- 211 Non-irrigated land
- 231 Pastures
- 242 Complex cultivation patterns
- 243 Land principally occupied by agriculture with areas of natural vegetation
- 311 Broad-leaved forest
- 312 Coniferous forest
- 313 Mixed forest
- 321 Natural grassland
- 322 Moors and heaths
- 324 Transitional woodland scrub
- 331 Beaches dunes sand
- 332 Bare rocks
- 333 Sparsely vegetated areas
- 334 Burnt areas
- 411 Inland marshes
- 412 Peat bogs
- 421 Salt Marshes
- 423 Intertidal flats
- 511 Stream courses
- 512 Water bodies
- 521 Coastal lagoons
- 522 Estuaries

Figure NTS 15 Corine Land Cover Analysis for the South West Region

The Corine land analysis, as shown on Figure NTS 15, shows that the largest land uses across the South West Region potentially affected by options within the Study Area Preferred Approaches are pastures, and peat bogs. All of these land uses and habitats could be temporarily disturbed, for example, through vegetation clearance within the 15m construction buffer zone around pipelines and site areas. For pipelines this will depend on route alignment and location within or alongside roads. Some land uses will also be permanently lost within construction footprints for infrastructure such as WTPs.

Once available, the EPA OSI national land cover map, currently under development, will be considered for land use information and analysed for potential effects as Preferred Approach options are taken froward for further study.

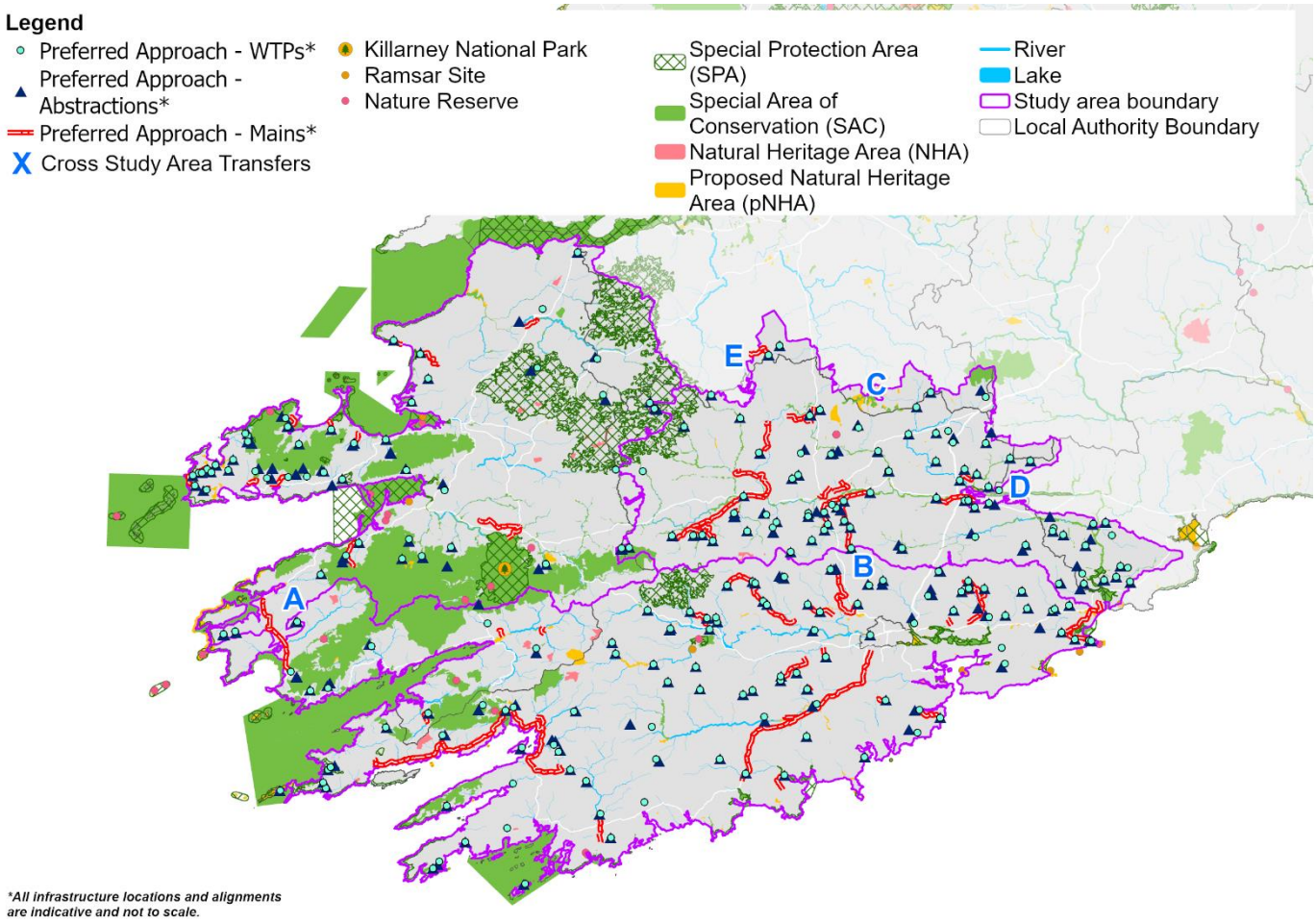


Figure NTS 16 Preferred approach with Cross Study Area Transfers and designations

Sustainability analysis for groundwater and surface water abstraction has already taken account of combined effects from other Irish Water abstractions within and across study area or region boundaries. Therefore, the components of Preferred Approaches most likely to lead to within-plan cumulative effects are the construction of pipelines and associated works, such as new WTPs and pumping stations. The pipelines for smaller water transfers are likely to be road-based. The pipelines will vary in size but there are five small SA Options that involve interconnections across Study Area boundaries (Cross Study Area Transfer) within the South West Region. Three of these Cross Study Area Transfers are from WRZs located in other Regions: two from the South East and another from the Eastern and Midlands Regions. The largest Cross Study Area Transfer is within the South West Region, from Lough Currane source in SAI to Cahersiveen and Emphalaghheasta / Portmagee / Maulin WRZs in SAH. Transferring water at approximately 2,900 m^3/day. The five cross study transfers A- E are identified in Figure NTS 16 above:

- **A** - SAI (South West)
- **B** - SAI (South West)
- **C** - SAK (South East)
- **D** - SAK (South East)
- **E** - SA8 (Eastern & Midlands)

The 'within-plan' cumulative effects across the three study areas are summarised in Table NTS 9.1 below.

Table NTS 9.1 'Within-Plan' Cumulative Effects Across the Study Areas

Study Area	Population, Economy, Tourism and Recreation, and Human Health	Water Environment	Biodiversity, Flora and Fauna	Material Assets	Landscape and visual amenity	Climate change	Cultural heritage	Geology and soils
SAH								
SAI								
SAJ								

Key	
Construction Phase	
Operation Phase	
Construction and Operation	

The potentially most significant cumulative effects (positive and negative) identified in Table NTS 9.1, in relation to each SEA topic, are:

- Population, Economy, Tourism and Recreation, and Human Health (+/-);
- Water Environment (+/-);
- Biodiversity, Flora and Fauna (+/-);
- Climate Change (-);
- Landscape (-); and
- Cultural Heritage (-).

9.2 Cumulative Effects with Other Plans and Programmes

The strategic plans and programmes assessed for significant cumulative effects (positive and negative) are shown in Table NTS 9.2.

Table NTS 9.2 Cumulative Effects with Other Plans and Programmes

Plan/Project	Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets and waste	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Ireland 2040: Our Plan, National Planning Framework (Government of Ireland, 2018)	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

Plan/Project	Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets and waste	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Regional Spatial and Economic Strategies	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
River Basin Management Plan (RBMP) (2018-2021) and draft RBMP 2022-2027		+		+			+/-	+/-		
Climate Action Plan 2021		+		+			+	+/-		
Forestry Programme 2014-2020: IRELAND (as extended until the end of 2022)		+		+			+	+/-		
National Marine Planning Framework (NMPF)	No direct interaction with the Regional Preferred Approach - potential for draft RWRP to support in the future with catchment management measures to improve water quality									
County and City Development Plans	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
Municipal Area Strategic Plans and Local Area Plans	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
Food Wise 2025	+	+/-		+/-			+/-			+/-
Draft Agri-Food Strategy 2030	+	+/-		+/-			+/-			+/-
EU Biodiversity Strategy for 2030	+	+		+						
National Biodiversity Action Plan	+	+		+		+	+	+		+
All Ireland Pollinator Plan 2021 – 2025	+	+		+		+	+			+
National Waste Action Plan for a Circular Economy 2020-2025					+	+				
Catchment Flood Risk Management (CFRAM) Programme (2011 onwards)	+		+							
Flood Risk Management Plans (2016)	+		+							
Offshore Renewable Energy Development Plan							+			

Plan/Project	Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets and waste	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
National Adaptation Framework (NAF)							+	+		
Tourism Development and Innovation 2016-2022	+	+/-		+/-		+			+	
Water Services Strategic Plan (WSSP)	+	+/-								
National Wastewater Sludge Management Plan (NWSMP) 2016-2021		+			+					+/-
Lead in Drinking Water Mitigation Plan (LDWMP)	+									

There are no additional mitigation measures identified from the assessment of interactions with other plans. The requirement to review and take account of relevant plans and policies in the implementation and future iterations of the RWRP-SW, is built into the monitoring and feedback step and embedded in the Environmental Action Plan provided in section 10.1.

9.3 SEA Summary for the Regional Preferred Approach

An overall assessment summary of the Preferred approach compared to the do minimum against SEA objectives is provided in Table NTS 9.3 below.

Table NTS 9.3 Regional Preferred Approach and Do Minimum Comparison

Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Do Minimum Approach									
-	-	0	-	-	0/-	0/-	-	0/-	0

- The ‘Do Minimum’ approach is the ‘without plan’ approach, meaning that this is the approach that would occur without the RWRP-SW. As a result, the ‘Do Minimum’ approach would only include reactive, unplanned interim measures to address likely failures in infrastructure; and
- Ongoing reliability issues with the supplies and the situation is expected to further deteriorate due to climate change driven reductions in water resources and increased demand growth within the area.
- While there would not be major construction works there would likely to be increased pressure on existing abstractions including abstractions likely to be currently above sustainable levels and increasing issues with unreliable or inefficient network infrastructure.
- Currently 55 surface water bodies currently are identified by Irish Water as not meeting sustainability guidelines during dry weather flows and these are likely to be subject to continued or increased abstraction pressure and other existing sources may be subject to increased abstraction pressure in the future also.

Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Regional Preferred Approach									
+	+/-	0/+	+/-	0/-	+/-	-	+	0/-	0/-

- Focus on three pillars of using less, losing less, and supplying smarter and a planned rather than a reactive approach and a resilient system with more reliable sources
- Implementation of the Regional Preferred Approach, which is the combination of Study Area Preferred Approaches for SAH, SAI and SAJ, with the mitigation identified in the SEA Environmental Report Appendix D Environmental Action Plan and the Monitoring Plan and the Study Area Environmental Reviews SAs H, I and J.
- Construction impacts from pipelines and associated infrastructure, but will be mitigated by reinstatement of land uses and mitigation and enhancement to minimise long term landscape, land use and biodiversity effects.
- Network improvements adding flexibility and resilience.
- Decommissioning of inefficient infrastructure and abstractions including from 91 ground water and surface water abstractions including nine surface water sources identified by Irish Water as not meeting sustainability guidelines during dry weather flows. Reduced pressure on 35 maintained surface water abstractions identified by Irish Water as not meeting sustainability guidelines during dry weather flows. Irish Water has applied sustainability guidelines to all new surface water sources ; however, further investigations will be undertaken to confirm sustainable yields for new and increased groundwater sources and these will be subject to assessments under the new abstraction legislation. Overall these will provide potential benefits for water dependent biodiversity including aquatic ecology and support for meeting WFD objectives through more sustainable abstractions.
- Recognition that a total of 11 existing abstractions that will be maintained are identified by Irish Water as currently not meeting sustainability guidelines during dry weather flows and may need alternative sources to support or replace these in the future.

- Carbon emissions associated with construction and moving and treating water.
- Improving Irish Water's understanding of future risks, including climate change and efficient water use.
- Increasing routine monitoring and operational planning allowing Irish Water to proactively manage and forecast resourcing and operational trends.
- Process put in place for monitoring implementation of the plan and reviewing and feeding back on a regular basis within the plan development cycle.

Key			
Likely to have a positive effect	+	Likely to have a mixed positive and negative effect	+/-
Likely to have a negative effect	-	Likely to have mixed neutral and negative effect	0/-
Effects are uncertain or not applicable	? or N/A	Likely to have mixed neutral and positive effect	0/+
Likely to have a neutral effect	0		

9.4 AA Summary for the South West Region

There were -3 scores for the Preferred Approaches, three for SAH (Mount Brandon SAC and the Dingle Peninsula SPA, Lough Leane SAC and Killarney National Park SAC) and one each for SAI (Blackwater Estuary SPA and Blackwater River (Cork/Waterford) SAC) and SAJ (Blackwater River (Cork/Waterford) SAC), but all Likely Significant Effects (LSE) on European Sites can be addressed by mitigation measures as set out in full in the NIS. No Adverse Effect on Site Integrity (AESI) are identified at Plan level.

9.4.1 AA In-Combination Summary

In summary, potential in-combination impacts between study areas within South West Region were identified for the following European sites:

- Ballinskelligs Bay and Inny Estuary SAC
- Blackwater Estuary SPA
- Blackwater River (Cork/Waterford) SAC
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC
- Lower River Shannon SAC
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA

However, potential in-combination effects (construction and/or operational) would only occur where options within each Study Area are progressed concurrently with one another or with projects, and in the absence of mitigation. With the implementation of mitigation as outlined in the NIS section 6.3 and Appendix E there will be no adverse effects on the integrity of the European sites, either alone or in-combination with other plans or projects as a result of progressing the Preferred Approach options associated with the draft RWRP-SW.

The conclusion of the NIS for the draft RWRP-SW is that, based on a plan-level assessment, and with implementation of appropriate mitigation for protecting European sites, there will be no adverse effects on the integrity of any European site(s), either alone or in-combination with other plans or projects as a result of progressing Preferred Approach options within the draft RWRP-SW.

9.5 WFD Summary for the South West Region

Application of estimated allowable abstraction constraints on new options means that only options that are expected to meet sustainability requirements are considered. Individual options within the Regional Preferred Approach have been assessed and are expected to be sustainable, based on Plan Level desk-based assessment, in terms of avoiding deterioration of WFD status or avoiding conflict with meeting WFD objectives.

All surface water abstractions proposed as part of the Preferred Approaches are within the expected sustainable abstraction limits of 10% or 5% of Q95 for good and high WFD river waterbody status sources and 10% or 5% of Q50 for good and high WFD lake waterbody sources respectively. Abstraction impacts on groundwater bodies have been assessed through a separate technical study which considered cumulative effects on WFD ground water quantitative status. Based on the available information this concluded that there is no indication of cumulative impact or impact on WFD quantitative status of the groundwater bodies (Irish Water, 2021).

However, cumulative effects also need to be considered, in terms of both sustainability for connected surface waterbodies and groundwater dependent habitats and protected areas. Further studies are identified in the Study Area Environmental Reviews for specific options where risks are identified.

9.6 Transboundary effects for the Regional Preferred Approach

The types of options and their location, proximity and pathways for environmental effects have been considered through the process in relation to possible environmental effects for the Northern Ireland environment including any shared groundwater and river catchments and the marine environment. For the combination of options included in the Regional Preferred Approach, no potential transboundary adverse environmental effects have been identified at the Study Area level or the Regional level for the draft RWRP-SW.

10 Mitigation and Monitoring Plans

The Mitigation and Monitoring Plans for the draft RWRP-SW are based on the plan outlined in section 8.3.8 of the Framework Plan and include three elements:

- Mitigation Measures including recommendations to incorporate into project development as options are taken forward through feasibility assessments, design, consenting and implementation;
- Environmental Action Plan (EAP) identifying actions to be taken to integrate environmental requirements into process and related areas so that mitigation recommendations implemented; and
- Monitoring Plan identifying the targets and indicators to be measured or recorded to determine progress to meeting SEA objectives.

The approach to monitoring takes account of the EPA guidance document ‘The Tiering of Environmental Assessment – The influence of Strategic Environmental Assessment on Project-level Environmental Impact Assessment’ (EPA, 2021).

The Monitoring Plan has therefore been provided in two parts; the first to address plan level monitoring and second to provide a framework for project level monitoring. The EAP also includes a task to review and update the monitoring indicators and targets to allow new conditions to be taken into account and to ensure the plan is sufficiently flexible to take account of environmental issues arising and any unforeseen adverse impacts. The plan level monitoring covers combined and cumulative effects. The

indicators include both those aimed at positive as well as covering potential negative effects and sources, frequency and responsibilities are identified.

10.1 Environmental Action Plan

The EAP set out in Monitoring of the targets include consideration within the Regional Plan development and SEA 2021/2022 or the next cycle of Regional Plans 2022 onwards.

Table NTS 10.1 below, summarises the actions for mitigation and areas of further study identified in the Environmental Report. The EAP provides a basis for tracking recommendations from the SEA during the Framework Plan implementation and Regional Plan development. Monitoring of the targets include consideration within the Regional Plan development and SEA 2021/2022 or the next cycle of Regional Plans 2022 onwards.

Table NTS 10.1 Environmental Action Plan

Ref no.	Recommended Action for Mitigation / Further Study	Target	South West Region Progress summary: Completed: Y In progress: P Recommended: R
Identifying the Need – Quantity, Quality and Reliability			
Quantity – Supply Demand Balance			
Abstractions and Supply Side Yield Assessments			
EAP1	**EAP1.1** Link investigation on supply risks to environmental resilience and avoiding damage to vulnerable habitats and protected areas; especially European designated sites, and threats to WFD water body objectives.	Environmental issues to be included in risk assessments for supply shortages or drinking water quality issues.	Y - completed for the draft RWRP-SW
Demand Side Data Improvements: Planning for Future Developments			
EAP2	**EAP2.1** Reviews of WRZ configuration can consider potential environmental benefits from rationalisation opportunities to improve operational efficiency for waste and energy use and also reduce need for developing new sources.	Optimised WRZs/study areas	Y– completed f or the draft RWRP-SW
	EAP2.2 Feed information on potential for water efficiency improvements to provide savings into future options identification		
Linking SEA and Future Development of Schemes			
EAP3	**EAP3.1** Understanding causes of water quality issues for drinking water can support catchment management actions. Link clean water element (RC3) on water quality	Source risk assessments and drinking water safety	Y Plan level assessment completed for the draft RWRP-SW

Ref no.	Recommended Action for Mitigation / Further Study	Target	South West Region Progress summary: Completed: Y In progress: P Recommended: R
	compliance and ongoing programmes on improving drinking water quality to potential for long term solutions through to long term catchment management opportunities to reduce pollution in groundwater and surface waters and water treatment issues.	plans linked to the NWRP process.	R project level assessments for water sources
	EAP3.2 Link Drinking Water Safety Plans to scoping of study areas, prioritisation and options development process including consideration of catchment management opportunities.		R
	EAP3.3 Link ongoing projects with the supply demand assessments, scoping area studies and prioritisation for new investment. Consider as part of investment proposals for water treatment works – wider rationalisation opportunities with opportunities to reduce abstraction pressure on stressed sources and potential for improvements to residuals management (see also EAP 11.1)	Existing programmes and projects coordinated with the NWRP	Y completed for the draft RWRP-SW.
	EAP3.4 Value environmental and social benefits as well as costs in options development process (using environmental economics tools such as natural capital / ecosystems services and social value assessments) which can also value nature based solutions and catchment management benefits.	CBA and MCA supported by environmental/social valuation as well as qualitative assessment	R
Delivering Solutions – Approach			
Climate Change			
EAP4	**EAP4.1** Take account of effects of climate change effects on protected areas and WFD objectives as well as water supply.	Environmental resilience as part of the climate change risk assessment informing long-term solutions.	R
	EAP4.2 Results completed, and ongoing climate change studies should be used to inform future scoping of study areas/WRZs,		R

Ref no.	Recommended Action for Mitigation / Further Study	Target	South West Region Progress summary: Completed: Y In progress: P Recommended: R
	and the types of solutions considered and prioritisation for investment.		
	EAP4.3 Long term actions to improve water retention in upper catchments as well as catchment wide water quality initiatives could be considered as responses. Catchment management benefits linking improvements to water quality reducing treatment and opportunities for improving carbon sequestration in soils and through woodland planting (also linking to biodiversity objectives)		R
	EAP4.4 Investigate opportunities to reduce carbon emissions in construction and operational phases reflecting importance of energy efficient and low carbon emission considerations in design and construction methods and considering opportunities for use of renewable energy sources.	Identify how construction and operational carbon can be reduced across project development, construction and operation including potential for including renewable energy sources, such as solar panels, in project design	R
Lose less: Leakage Reduction			
EAP5	**EAP 5.1** Take forward studies and actions supporting meeting leakage targets and include consideration of relieving pressure on existing deficit areas and abstractions with sustainability issues and drought risks.	Develop information to support and improving leakage reduction	R
Use Less: Water Conservation			
EAP6	**EAP6.1** Link to raising awareness on environmental benefits of water conservation.	Improved awareness of benefits of conserving water (day to day and during extreme events)	R
	EAP6.2 Consider customer research on the water supply and demand management including water efficiency options development along with local community and stakeholder views.		R

Ref no.	Recommended Action for Mitigation / Further Study	Target	South West Region Progress summary: Completed: Y In progress: P Recommended: R
	EAP6.3 As data is developed to support understanding on water conservation, develop water conservation/water efficiency options to be considered as part of the Options Assessment Methodology for future plan cycles.	Monitoring and feedback stage 8 of the options assessment methodology	R
Supply Smarter: Capital Investment and Improved Operations			
See **EAP3, 4 and 5** in relation to linking ongoing programmes and future water resource planning and **EAP10, 11 and 12** on implementing options and approach assessment methodology.			
Drought Planning			
Information for Assessing Drought Risks			
EAP7	**EAP7.1** Identify the risks from potential drought actions for water sources designated for nature conservation value and supporting protected species - include lessons learned from the 2018 drought.	Drought -sources at risk identified	R
Environmental Mitigation of Drought Measures			
EAP8	**EAP8.1** Assess potential impacts of drought restrictions on customers, especially vulnerable groups, to identify both communication requirements and exemptions on restrictions relevant for each management area.	Drought management avoiding causing temporary or long-term impacts on protected habitats and species as well as minimising restrictions to customers	R
	EAP8.2 Develop drought communication plans and identify approaches to avoid impacts on vulnerable water users, for example, through exemptions – plan to provide customers with information early so that voluntary measures can be effective in avoiding the need for additional measures in most cases and taking forward the approaches from the 2018 summer drought and 2020 spring drought.		R
	EAP8.3 Prepare environmental assessments (including AA) for sensitive water sources at risk from drought		R

Ref no.	Recommended Action for Mitigation / Further Study	Target	South West Region Progress summary: Completed: Y In progress: P Recommended: R
	management actions. These should be available in advance of measures being needed. They should include consultation on the assessments with environmental authorities and identify specific monitoring or mitigation measures.		
Residuals Approach			
EAP9	**EAP9.1** Include consideration of residuals management in the options development process involving WTPs or rationalisation opportunities	Residuals approach linked to options development process	Y
	EAP9.2 Apply the waste management hierarchy with any solid waste disposal limited to appropriate licensed sites.		R
Delivering Solutions: Options and Approach Assessment Methodology			
Integration of Environmental and Sustainability Considerations			
EAP10	**EAP10.1** Study area scoping to include analysis of environmental baseline issues, risks, constraints and opportunities to inform identification of initial options as providing context for the option development process.	Context for identifying and assessment options is provided	Y
	EAP10.2 Further development of the environmental and social impact valuation methodology as a tool for the approach appraisal process, based on ecosystems services assessment/natural capital assessment principles, can support cost benefit analysis and MCA methodologies and provide quantitative information supporting SEA in the future.	CBA and MCA supported by environmental valuation based on natural capital/ecosystems services approaches as well as qualitative assessment	R R
	EAP10.3 Comparison of combinations of options (or approach) should include assessment of cumulative effects for each Study Area (groups of WRZs) and be considered in determining the best value approach. Justification for the approach selected will need to be provided.	Best environmental solutions considered in selection of preferred solutions with mitigation built into design and costing. Opportunities for enhancement to	Y

Ref no.	Recommended Action for Mitigation / Further Study	Target	South West Region Progress summary: Completed: Y In progress: P Recommended: R
		contribute to objectives to be considered	
Transboundary Issues			
EAP11	**EAP11.1** Ensure potential for transboundary impacts are considered during options assessment and early consultation is undertaken to inform the assessment process.	Avoid transboundary effects	P R
Delivering Sustainable Solutions			
EAP12	**EAP12.1** Link the options development information and SEA mitigation recommendations into the initial studies and designs for selected project level schemes so that assumptions and mitigation recommendations are taken forward. Develop a monitoring information template to capture key environmental information at key project development stages recording: • Project design/implementation stage and environmental assessment process applied and link to SEA and NIS recommendations • Data review and update at each key stage including reviewing current and draft policies and plans • Report on Monitoring Plan indicators • Identify potential for cumulative effects	Template developed and applied Preferred approach options taken to project stage subject to initial environmental review linking to information from the options development and assessment process and to good practice procedures and Monitoring Plan criteria.	P
	EAP12.2 Development of procedures to integrate good practice approaches for avoiding/mitigating environmental impacts and identifying enhancement opportunities in future scheme design and development.		P
	EAP12.3 Ensure environmental mitigation and study requirements are covered in option costing and risk aspects are taken into account in scheme development.		P

Ref no.	Recommended Action for Mitigation / Further Study	Target	South West Region Progress summary: Completed: Y In progress: P Recommended: R
	EAP12.4 Review monitoring framework and update to ensure environmental mitigation and study requirements are covered in option costing and risk aspects are taken into account in scheme development.		

11 Next Steps

This SEA Environmental Report (including the Study Area Environmental Review appendices), along with the NIS and draft Regional Plan are available for comment and review during the current consultation period. The process and deadline for submitting observations are set out on the Irish Water website.

Following the completion of the consultation period, all comments will be reviewed and considered as part of finalising the Regional Plan. Responses to the consultation comments will be reported in a Consultation Report.

SEA requirements and consultation comments will be taken into account in finalising the Regional Plan. Consultation responses and how the SEA has been taken into account will be reported in the SEA Statement published with the final Regional Plan.

11.1 Further information

For more information, please refer to one or more of the communication channels below:

- Draft RWRP-SW webpage on the Irish Water website in English and Irish;
- Information leaflet available in English and Irish;
- Draft RWRP-SW infographic;
- Press release to national and local media;
- Newspaper advert;
- Hard copies of the draft Regional Plan, environmental reports, Non-technical Summary and consultation leaflet made available at planning counters nationally;
- FAQs;
- Freephone number 1800 46 36 76;
- Social media; and
- Correspondence and briefings to:
    - Elected representatives;
    - Local authorities;
    - Environmental authorities;
    - Interested parties; and
    - Media.

This SEA Environmental Report has been prepared on behalf of Irish Water and is available online at the following website:
https://www.water.ie/nwrp

Further information requests and written submissions or observations can be sent to Irish Water:

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